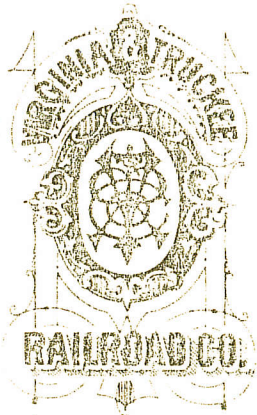


Northwestern Pacific #112

STEAM LOCOMOTIVE

Feasibility Report





STEPHEN E. DREW

4012 Linwood Avenue • Oakland, California 94602 • (415) 530-6959

CALIFORNIA STATE RAILROAD MUSEUM,

Old Sacramento:

EQUIPMENT RESTORATION FEASIBILITY INVESTIGATION

Compiled by

STEPHEN E. DREW

WILLIAM A. ODEN

For the

STATE OF CALIFORNIA

DEPARTMENT OF PARKS AND RECREATION

1976

Summary
Chronology

- I. Historical Perspective
Specifications
- II. Current Condition Evaluation
Component Analysis
- III. Restoration Recommendations

Virginia & Truckee Railroad Locomotive No. 12 "Genoa"

Virginia & Truckee Railroad Locomotive No. 13 "Empire"

Virginia & Truckee Railroad Locomotive No. 21
"J. W. Bowker"

Northwestern Pacific Railroad Locomotive No. 112

Virginia & Truckee Railroad Combination Car No. 16

Sierra Railway Company of California Passenger Car
No. 3 "Stanislaus"

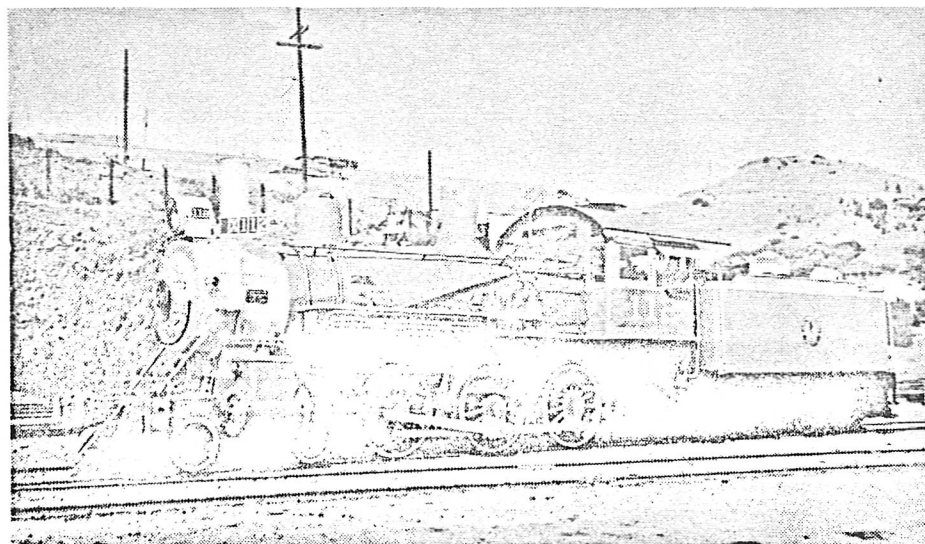
Central of Georgia Railway Business Car No. 97
"The Gold Coast"

NORTHWESTERN PACIFIC RAILROAD COMPANY

LOCOMOTIVE NO. 112

- I. Historical Perspective
- II. Current Condition Evaluation
- III. Restoration Recommendations

PRELIMINARY
SUBJECT TO REVISION



Tiburon, California, 1955

NORTHWESTERN PACIFIC RAILROAD

LOCOMOTIVE NO. 112

Summary

History: Northwestern Pacific Railroad Locomotive No. 112 was outshopped in 1908 by the American Locomotive Company of Schenectady, New York, for \$14,823. The engine regularly hauled passengers and freight throughout the Northern California Redwood Empire until it was retired in 1952. The locomotive was donated to the Pacific Coast Chapter of the Railway & Locomotive Historical Society, Inc. in 1952 and was conditionally presented to the State of California in 1969. The engine was placed on static semi-restored public display beginning 1976 in the Old Sacramento Central Pacific Railroad Passenger Station.

Condition: The locomotive was last repainted in 1965 at the San Francisco Bethlehem Ship Yard. The engine has received numerous repairs and modifications during its 44 years of operation. Its present paint scheme, however, was never applied to this locomotive while in service. With the exception of the false boiler-jacket and paint scheme, the engine's present condition most closely resembles its ca. 1945-1952 in-service appearance on the Northwestern Pacific Railroad.

Restoration: Professional straightening, cleaning, jacket replacement and appropriate repainting is required to accurately complete the engine's present 1950's era display appearance. The engine is typical of transition locomotives constructed at the beginning of the modern steam era and its maximum display potential will be achieved by completely restoring its 1908 appearance as built. But full 1908 restoration will likely occupy a long range, low priority position in view of the locomotive's current reasonable presentable condition and other collection pieces requiring immediate major attention.

Stephen E. Drew
William A. Oden

July 1976

CHRONOLOGY

- 1908 Built by American Locomotive Company, Schenectady, New York, for \$14,823 as Northwestern Pacific Railroad Locomotive No. 112
- 1914 Pyle National Electric generator and headlight applied
Steam heat equipment installed
- 1919 Steel boiler tube pilot applied
- 1921 Spark arrestor added
- 1934 Last engine to operate on Point Reyes Branch
- 1935 Last engine to operate on Russian River Branch
- 1952 Last operated for Railway & Locomotive Historical Society Excursion
Presented to R&LHS, Inc. Pacific Coast Chapter
- 1955 Repainted, displayed at Southern Pacific Centennial, Sacramento
Stored Tiburon Roundhouse
- 1962 Moved by Sante Fe barge to San Francisco for storage
- 1965 Cosmetic display renovation for \$5,108 at Bethlehem Ship Yard, San Francisco
Stored former Key System Inspection Barn, Oakland, California
- 1969 Stored Safeway Stores Distribution Warehouse, Sacramento
Presented conditionally to State of California
- 1976 Placed on static semi-restored public display at Old Sacramento

I. HISTORICAL PERSPECTIVE

1908 - 1952.

Locomotive No. 112 of the Northwestern Pacific Railroad (N. W. P.) was the first of four identical engines ordered by the new railroad company late in 1907. Today N. W. P. No. 112 is the last existing steam locomotive from either the standard or narrow gauge lines of the Northwestern Pacific Railroad. From an all-time locomotive roster of nearly a hundred operating steam engines, only N. W. P. No. 112 has avoided disastrous wrecks and the scrapper's torch to become the sole steam survivor of the 570 mile Northern California rail line. The locomotive today is typical of engines operated during the last few decades of steam railroading and its condition and handsome completeness in appearance justly merits its educational public display.

The Northwestern Pacific Railroad Company was organized on January 8, 1907, as an assemblage of dozens of predecessor standard and narrow gauge short lines. The majority of these independent predecessor lines had been constructed with a surprisingly uniform objective: to tap the rich redwood lumber resources of California's northwest coast. Until the turn of this century, much of the valuable timber stands of the Northern California Redwood Empire were still untapped in remote areas isolated from the rest of the state and the nation. Numerous independent local logging railroads--particularly in Humboldt County--had developed limited rail lines between timber areas and the coast. But inadequate dirt roads which approached mountain trails in quality and severely limited harbor access for ocean-going vessels left the narrow Northern California redwood forest belt underdeveloped until after the turn of the century. It was only as two transcontinental rail builders began to focus their attention on the vast stands of the nearly indestructable redwood tree that the area finally achieved its desired rail connection with a viable world market.

In 1903, the Atchison, Topeka & Santa Fe Railroad acquired several small rail lines in the Eureka-Scotia area with the intention of laying a connecting line down the canyon of the south fork of the Eel River. From here the route would traverse Lake, Napa and Solano Counties to ultimately connect with the Santa Fe's main transcontinental line. In the meantime, the competing Southern Pacific was acquiring various short line railroads on the south end of the Redwood Empire between San Francisco Bay and Willits with the view of constructing a hundred mile connecting link up the canyon of the main fork of the Eel River to Northern California timber properties.

Both the Santa Fe and Southern Pacific wanted to close the gap along the rugged Eel River Canyon yet the sizeable traffic expected upon completion of the line was not sufficient to support the \$30,000,000 cost of constructing two competing lines. Therefore, a partnership originated on January 8, 1907, that created the Northwestern Pacific Railroad Company. The merger brought with it all types of standard and narrow gauge steam locomotives and cars from nearly four dozen Northern California short line railroads. Several of the absorbed lines had roots extending as far back as 1862 and the whimsically sounding Petaluma & Haystack Railroad.

Progress on completing the 106 mile link between Willets and Shively was slow and arduous. Construction was barely underway when the financial panic of 1907 interrupted track laying for well over a year. The unstable geology of the region moved some of the tunnels out of alignment almost as soon as they were bored. Sudden downpours and flooding of particularly the Russian River were constant perils and it was not until October 23, 1914, that the last spike was driven at Cain Rock to complete the \$15,000,000 line. Heavy rainfall delayed the opening of the line even further and regular scheduled service was not inaugurated until July 1, 1915.

On January 17, 1929, the Santa Fe sold their \$4,600,000 interest in the partnership to the Southern Pacific and since then the Northwestern Pacific has remained an operating, wholly-owned subsidiary of Southern Pacific. The railroad continues in daily freight operations today and carries over 80% of the forest products to market from a region containing the largest commercial stand of redwood trees in the world. The N. W. P. still enjoys the dubious distinction of being one of the most expensive railroads to maintain in serviceable operation. This is due to the perils of winter and the rugged terrain which the railroad runs through.

The first new locomotives to be ordered by the Northwestern Pacific were four identical standard gauge 4-6-0 ten-wheelers which became N. W. P. Nos. 111-114. The engines were ordered late in 1907 for construction at the Schenectady, New York, works of the American Locomotive Company and the first of the four engines to arrive was N. W. P. Locomotive No. 112.

Built at a cost of \$14,823.08, No. 112 was of a traditional American design for versatile duty in both freight and passenger hauling service. The 4-6-0 was outshopped by the American Works in February 1908 as boiler construction No. 44956 near the beginning of the modern

steam era. The American Locomotive Company for its part was one of the nation's leading builders of steam and later diesel locomotives. The Company was organized in 1901 through the merger of eight competing firms and the resultant conglomerate remained a major engine builder until the 1960's.

Of the four N. W. P. 1908 ten-wheelers, No. 112 was the first to arrive on March 14, 1908. This qualified the 112 as the first engine to be purchased new by the Northwestern Pacific Railroad. The locomotive was primarily of steel construction with the latest American crude fuel oil apparatus. The extended wagon top steel boiler contained 256 electric welded 2 inch diameter tubes which provided 1,765 square feet of water heating surface. Two 19 x 26 inch steel cylinders with Stephenson Link Valve Motion powered six 57 inch diameter flanged steel-tired drivers. The trailing eight wheeled rectangular tender held 4,500 gallons of water and 1,710 gallons of crude oil when the height of the tank was filled to its 65 inch capacity. Together the engine and tender measured 59 feet 4 inches long and had a combined weight of 168,600 lbs. light, 232,300 lbs. when fully fueled and loaded. With an operating steam boiler pressure of 180 lbs. per square inch, No. 112 could readily provide up to 25,200 lbs. of drawbar tractive power.

As delivered by the American Works, the locomotive was painted black with lightly oiled side rods and a limited number of ornamental and functional polished brass fittings. The initials "N. W. P." were applied in gold letters to the cab sides and tender railing and the number "112" was painted in large numerals on the sides and rear of the tender. The engine was invoiced for \$14,823.08 and only minor setting up was required at the N. W. P.'s Tiburon Shops prior to entering daily operation.

Until the connection was completed between north and south N. W. P. trackage in 1914, Locomotive No. 112 was used for all types of revenue service. Initially, as one of the larger engines, the 112 was used for passenger trains until 1910-1911. Then it hauled freight, passengers and work trains and even assisted in construction activity on the connecting north-south line. In the early years it was not uncommon to see the 112 hauling either a long, impressive train of freshly cut redwood logs or a string of old olive green wooden passenger coaches. Versatility was the order of the day in N. W. P. operations and No. 112 for its share was utilized in nearly every conceivable type of both maintenance and revenue operation. Its most notable service exception above and beyond the call of duty occurred on the Schooner Wharf at Tiburon Bay on Sunday,

June 29, 1913. Less than two years earlier, a sister engine had sailed off the wharf into salty bay waters. No. 112 unfortunately met a similar fate in 1913 when rotten wharf piling unexpectedly gave way under the enormous weight of the 137,800 lb. engine and the backhead of the 4-6-0 took an extended bath in salty bay waters. The ten-wheeler was eventually dragged to higher ground, however, and, following repairs at the Tiburon Shops, was fully returned to regular service.

After the October 1914 completion of north-south Eel River trackage connecting Eureka and Sausalito, the Northwestern Pacific Railroad transportation system became fully operational. Its service to the Redwood Empire included elaborate rail and ferry boat systems with major industries and secluded resort areas strung along its entire lines. The railroad right-of-way itself was generally characterized by its numerous curves, spectacular river and redwood scenery, lightweight rail and scores of trestles, bridges and tunnels. After 1914, No. 112 became a regular freight hauler, particularly on the north end lines and on the 86 mile Willits-Santa Rosa run; trim 4-4-0's usually had preference on the light passenger assignments in the early years. After the arrival of larger locomotives in 1922, the 112 was relegated to freight service on small branch lines. But during the summer months, the ten-wheeler saw extensive service hauling heavy 14 car passenger excursion trains. Resort areas nestled among redwoods and popular picnic spots along the Russian River, Point Reyes and the Sonoma Valley attracted Bay Area residents by the boatfulls and much of the N. W. P.'s passenger business was in hauling the weekend influx of tourists, picnickers and vacation seekers.

Repairs, part replacements, improvements, modifications and federal safety requirements caused numerous alterations in the appearance and operation of the 112 from its as-built specifications. Kerosene marker lamps were installed on both sides of the boiler smoke-box and the original acetylene headlamp and cab kerosene lights were removed on March 6, 1914; they were replaced by a Chicago Pyle National Company boiler-mounted generator 32 volt lighting system at a cost of \$141.58. A rear headlight was added in July 1917 for \$39.75 and \$5.17 headlight dimmers were installed during November 1919. Safety Car Heating & Lighting Company steam heat equipment was added on October 17, 1914, and a smoke stack spark arrester was applied on July 18, 1921. Cast steel pilot beams and a boiler tube pilot replaced the original wood staved pilot at a material cost of \$106.35 in November 1919. Train identification boards, an additional 9-1/2 inch Westinghouse air pump, 90 feet of cooling coils, solid instead of spoked pony truck wheels, pilot and sand dome hand grabs, cab visors, back flange

lubricators, an auxiliary injector line for fire fighting purposes and wooden rear tender boards were among No. 112's contemporary additions applied at the N. W. P.'s Tiburon Shops. During an early 1920's repainting of the engine, the cab and tender lettering were reversed so that the cab sides now bore the engine number while the tender sides were lettered as N. W. P. The original gold lettering finally gave way to more economical yellow and finally white paint.

By 1928, the Santa Fe Railroad was weary of underwriting N. W. P. losses and the then diminished prospects for increased traffic. Following application to the U.S. Interstate Commerce Commission, the Santa Fe sold their half interest in the N. W. P. to the Southern Pacific in 1929 and the N. W. P. became a wholly owned subsidiary of the progressive S. P. transportation system. Major abandonments of little used branch lines was begun in 1930 and the gradual relegation of N. W. P. steam locomotives to the Tiburon scrap line began with S. P.'s mid 1930's acquisition of their first diesel locomotive. No. 112 has the distinction of being the last engine to operate over several of the small branch lines prior to their abandonment. The 4-6-0 was the last engine to operate over the 17.5 mile Manor to Point Reyes line in October 1934 when it brought out three narrow gauge engines on flat cars that had been left in the Point Reyes Enginehouse a year earlier. No. 112 also hauled the last two empty cars over the 23 mile Fulton to Duncan Mills line on Tuesday, November 19, 1935, as the last train movement on the Russian River Branch.

In later years, the 112 operated almost exclusively on the N. W. P.'s Guerneville Branch. Two of the identical locomotives from the 111-114 series were nearly always at work on the six day a week 50 mile freight trip between Petaluma and Cazadero. Then on Saturday or Sunday, the locomotive stored at Petaluma would run south to the Sausalito ferry terminal to assist with the summer tourist influx. By 1949, No. 112 was operating on the Eureka-Samoa run as one of only 15 serviceable N. W. P. steam locomotives. The presence of larger Southern Pacific steamers and modern diesels were rapidly taking their toll on the N. W. P.'s decreasing steam roster.

The last operation of No. 112 occurred on May 24, 1952, upon the occasion of a Railway & Locomotive Historical Society Pacific Coast Chapter Redwood Empire Excursion. The Chapter had a brief ride over Hammond Lumber Company trackage between Samoa and Crannel behind H. L. Co. Locomotive No. 15. Then, with 274 persons aboard, N. W. P. Locomotive No. 112 easily handled the special eight car train while additionally earning the record as the last N. W. P. steam

engine to operate north of Eureka. The last day of steam on the Northwestern Pacific was held on September 20, 1953, using N. W. P. Locomotive No. 182. But when No. 182 was scrapped on November 21, 1955, Locomotive No. 112--the first engine purchased new by the N. W. P. in 1908--became the last existing Northwestern Pacific steam engine. From an all-time roster of 98 wholly-owned Northwestern Pacific standard and narrow gauge steam locomotives from all types of builders ranging from Grant to Rogers, from Baldwin to Cooke, and a variety of wheel arrangements varying from 0-4-0's to 2-8-0's including 38 4-6-0's, a Shay and a Heisler locomotive, by 1956, only the No. 112 was left.

1952 - 1976

It was solely the activity of the Railway & Locomotive Historical Society's Pacific Coast Chapter Chairman Fred Stindt that was responsible for securing the preservation and donation of Northwestern Pacific Locomotive No. 112 through the generosity of Southern Pacific President Donald J. Russell. Chairman Stindt's enthusiasm for the Northwestern Pacific Railroad began with an early childhood excursion to Monte Rio and his first railfan picture taken in 1927. Fred Stindt had watched Locomotive No. 112 at work on the N. W. P. for many years and concluded to approach the Southern Pacific for possible donation of the engine to the Pacific Coast Chapter; time was of the essence so that the 112 would not be felled by the scrapper's torch like the rest of her former companions. In 1952, the Chapter was actively gathering historic equipment for display in a proposed railroad and maritime museum at Aquatic Park in San Francisco.

Following the Chapter's successful May 1952 fan trip hauled behind N. W. P. No. 112, Mr. Stindt first wrote to S. P. President Russell on October 6, 1952, to urge preservation of the locomotive for the railroad museum. A reply was promptly forthcoming from S. P. Assistant to the President Theodore Wright:

"In Mr. Russell's absence from headquarters on an inspection trip, I am acknowledging your letter October 6 inquiring about Northwestern Pacific locomotive No. 112.

"You are correct in stating this locomotive is awaiting scrapping. Actual dismantling, however, has been held up due to another party having written us about purchase of it, also for historical purposes,

prior to receipt of your letter.

"Under the circumstances it is not possible for us to give you a definite reply as to the possibility of your securing this locomotive, unless the other interested party decides not to make the purchase."1

Undaunted by the apparent competition of a prospective purchaser, Mr. Stindt again wrote President D. J. Russell on October 28th concerning possible donation of the engine to the Pacific Coast Chapter. Finally, on November 14, 1952, the good news of the Southern Pacific's intention to donate the engine was made by President Russell:

"Referring to your letter of October 6, asking that consideration be given to presenting Northwestern Pacific Locomotive No. 112 to your Society, which you contemplate placing in the proposed Railroad Museum at Aquatic Park in San Francisco.

"We are now free to consider your request and will be glad to donate NWP Locomotive No. 112 with a 4,500 gallon tender to your Society when the Railroad Museum becomes a reality, with the understanding it will be placed on exhibit in the museum, will not be restored to service and the original lettering indicating NWP ownership will be preserved and maintained.

"When museum is equipped to receive this locomotive, if you will let us know, further arrangements can then be made."2

According to annotations on the official equipment record specification cards held by Fred Stindt, the date of actual donation of the locomotive and tender to the Chapter was confirmed by GMO 54682 issued on June 18, 1953, by N. W. P. General Manager George L. Morrison. The news media throughout the Bay Area and the Redwood Empire carried enthusiastic reports of the salvage of the locomotive for the proposed San Francisco railroad and maritime museum:

"Old engine No. 112, retired last June by the Northwestern Pacific Railroad after 45 years service in the Redwood Empire, has been saved from the scrap pile by the Pacific Chapter of the Railway and Locomotive Historical Society.

"The chapter headed by Fred A. Stindt persuaded the Southern Pacific Railroad, of which Northwestern Pacific is a subsidiary, to donate the locomotive to the society so it can be placed in the proposed Railroad and Maritime Museum at Argonaut Bay, Aquatic Park, San Francisco.

"Construction of the museum is expected to start shortly."³

As fund raising for the Aquatic Park site progressed, Locomotive No. 112 was stored inside the N. W. P. Roundhouse at Tiburon following its official retirement in June 1952. In mid 1955 the idea was conceived to repaint No. 112 for static display at the Sacramento Southern Pacific Station in connection with the August 1955 celebration of the founding of the Sacramento Valley Railroad--the oldest predecessor of the S. P. system. At that time, Chairman Stindt suggested the engine be repainted to the 1920's era N. W. P. passenger engine color scheme which the locomotive still bears. Quoting Fred Stindt's own brief published history of this locomotive:

"In the late mid-twenties the Northwestern Pacific Railroad came under heavy criticism from Marvelous Marin Incorporated along with the various cities it served in Marin and Sonoma County for poor service and out-dated and poorly kept equipment. The California State Railroad Commission had numerous sessions with the result the railroad did so many things to improve service and their facility. One of the railroad's ideas was to give their passenger engines a distinctive look, which resulted in two-tone green paint scheme for engine and tender and a beige jacket. A colorful insignia was developed for the tender, with the number previously on the tender placed under the cab window. The plan called for a 'try-out' on four passenger engines, however no other locomotives ever received this treatment."⁴

In reality, only N. W. P. passenger locomotives Nos. 21, 22, 53 and 54 ever briefly had the two-tone green, beige jacket and red cab roof color scheme applied at the inspiration of Shopman Palmer in response to pressure to upgrade the N. W. P.'s public image. Soot from the smoke stack quickly obliterated the beige jacket within a month, however, and the trial paint scheme was not applied to any other locomotives and was soon abandoned. Complete repainting of No. 112 to 1920's colors,

with the exception of a green boiler jacket, was accomplished by Clifford Hanssen and his staff at the Tiburon Shops in time for the August 21, 1955, display at the S. P. Centennial. Afterwards, No. 112 was returned as dead freight on its own wheels with main rods off to the Tiburon Roundhouse for storage. Unfortunately the engine was kept secure and covered only for a few months until the roundhouse was completely torn down by May 1958 leaving the 112 standing outside uncovered as a result. Still the locomotive was held at Tiburon where it remained on N. W. P. property without charge to the Pacific Coast Chapter and yet in close proximity to the proposed San Francisco museum site.

The custody of the locomotive was finally relinquished at 3:22 p.m. on April 9, 1962, when the Chapter had No. 112 moved from Tiburon via a Santa Fe barge to the San Francisco shipbuilding yard of the Bethlehem Steel Corporation. Here the engine remained in outside storage until it could again be repainted and otherwise spruced up for cosmetic static display. Between January and May 1965 at a cost to the Chapter of \$5,107.09, Bethlehem replaced various fittings, decayed timbers, missing gauges and installed a cosmetic boiler sheathing over the existing jacket. Old time N. W. P. employees were consulted to vouch for the accuracy of the briefly used mid 1920's era passenger paint scheme which was reapplied to the engine complete with a beige jacket. Working under the direction of Bethlehem Foreman and R&LHS member William M. McKay, Jr. and Chairman Stindt, Bethlehem craftsmen completed the static display renovation on May 18, 1965.

Beth. has
purchased
Union
Iron
Works

Carried over the bay by the Western Pacific "Las Plumas" Ferry on the evening of May 21st, No. 112 remained inside the Oakland Western Pacific Roundhouse until June 3rd when it was switched by the Oakland Terminal Railway into the former Oakland Key System Railway Inspection Barn for secure covered storage. As the site for the California State Railroad Museum and Research Library shifted from San Francisco to Sacramento, No. 112, Denver & Rio Grande Combination Car No. 550 and "The Gold Coast" were towed to Sacramento and moved on July 7, 1969 by Central California Traction Company into the newly acquired storage space generously provided at the Safeway Stores Food Distribution Warehouse in east Sacramento. On August 10, 1969, the engine was conditionally presented by action of the Board of Directors of the Chapter to the State of California for eventual display at the Old Sacramento Railroad Museum. Washed down and polished, No. 112 was moved on June 30, 1976, into the reconstructed Central Pacific Railroad Passenger Station for static public display beginning Saturday, July 3, 1976.

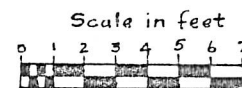
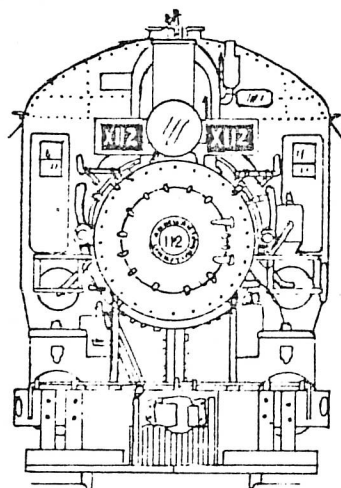
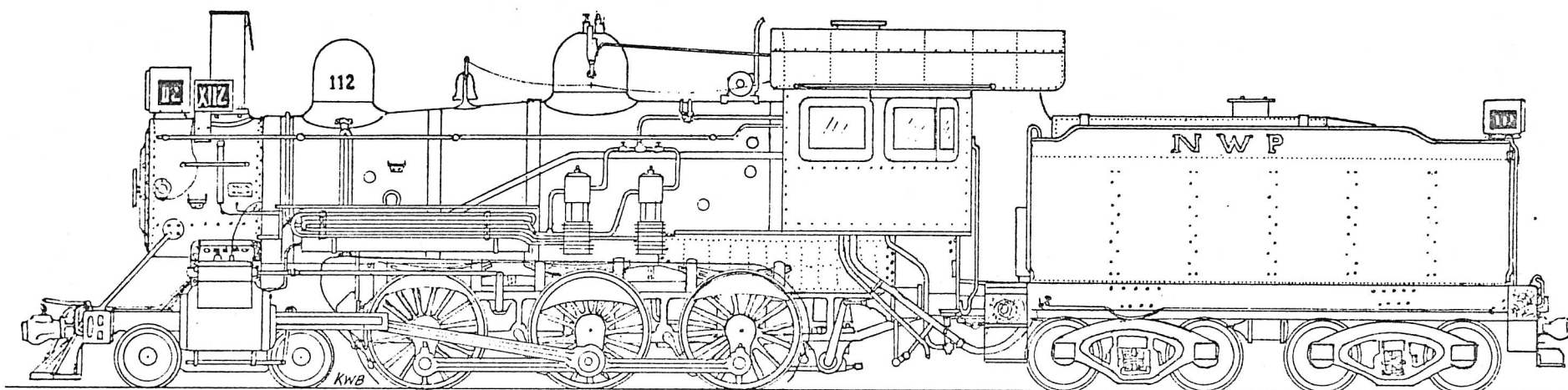
1965

N. W. P. Locomotive No. 112 is a much larger and complex engine than the older and less powerful Virginia & Truckee locomotives with which it is presently displayed. The 112 by contrast is almost entirely all steel construction with features and appliances typical of more sophisticated locomotives of the modern Twentieth Century steam era. Her backhead fittings comprise a maze of valves, gauges and levers in comparison to the simple parts of a cab of the 1870's.

The last existing Northwestern Pacific steam locomotive, the 68 year old engine is a classic monument to the illustrious fleet that for decades was the sole connecting rail link between the Northern California "Redwood Empire" and the outside world.

NOTES

1. Theodore Wright, Assistant to the President, Southern Pacific Company, to Fred A. Stindt, letter, October 10, 1952.
2. Donald J. Russell, President, Southern Pacific Company, to Fred A. Stindt, letter, November 14, 1952.
3. Oakland Tribune, June 12, 1953.
4. "Steam Locomotive - Northwestern Pacific Railroad No. 112"
by Fred A. Stindt, ca. 1969.



Northwestern Pacific Rlwy 4-6-0 #112

Dr. By <i>K. Brownfield</i>	Ck. By	Part No.
Date <i>Aug 6, 1976</i>	Scale	Dr. No.

AS-BUILT SPECIFICATIONS

Builder: American Locomotive Company.

Place: Schenectady, New York

Date: February 1908

Gauge: 4 feet 8-1/2 inches

Type: 4-6-0 Ten-wheeler

Class: T-57. 19/26 110

Builder's Number: 44956

Road: Northwestern Pacific Railroad Company

Number: 112

Service: Passenger and Freight

Fuel: Crude Oil

Cost New: \$14,823.08

Tractive Power: 25,200 lbs.

Boiler Pressure: 180 lbs.

Weight

On Engine Truck: 28,200 lbs.

On Drivers: 109,600 lbs.

Engine Total

Light: 123,800 lbs.

Loaded: 137,800 lbs.

Tender Total

Light: 44,800 lbs.

Loaded: 94,500 lbs.

*Loaded engine
wo tender*

Wheel Bases

Lead Truck: 5 feet 10 inches

Wheel Bases (Continued)

Rigid: 12 feet

Total: 22 feet 7 inches

Boiler

Material: Steel

Diameter First Course: 60-1/8 inches

Type: Extended Wagon Top

Fire Box

Material: Steel

Type: Narrow

Length: 97 inches

Width: 33-1/4 inches

Depth: 66-1/2 inches

Thickness of Sheets: 3/8 inch

Tubes

Type: Electric Welded

Number: 256

Diameter: 2 inches

Thickness: 1/2 inch

Length: 13 feet 3 inches

Grate Area: 25 square feet

Ash Pan: Steel

Heating Surfaces

Tubes: 1,765 square feet

Fire Box: 158 square feet

Total: 1,923 square feet

Cylinders

Number: 2

Diameter: 19 inches

Stroke: 26 inches

Type: Half Saddle Slide Valve

Valves

Type: American Balance

Motion: Stephenson Link

Casing: Steel

Covers: Steel

Cylinders (Continued)

Steam Chests

Casing: Steel

Covers: Steel

Drivers

Diameter: 57 inches

Tires: Steel

Throttle

Type: Balance Valve

Position: In Dome

Smoke Stack: Funnel

Pumps

Number: 1

Feed Cocks: 2

Checks: 2 Brass

Injectors: 2

Sand Box: Steel

Cab: Steel

Pilot: Wood

Pony Truck

Type: 4 Wheel Swing Center

Wheels

Type: Spoked Iron

Diameter: 26 inches

Journals

Diameter: 5-1/2 inches

Length: 12-1/2 inches

Tender

Type: 8 Wheel Rectangular

Square Frame: Steel, wood sills

Trucks: Steel

Wheels

Diameter: 33 inches

Type: Cast Iron

Tender (Continued)

Journals

Diameter: 5 inches

Length: 9 inches

Brakes: Double, to both trucks

Brake Beams: Steel

Safety Chains: Double

Tool Boxes: 3

Slack Adjuster: American J-1

Tank Capacity

Water: 4,500 gallons

Oil: 1,710 gallons

Couplers: Tower Knuckle

Running Boards: Steel

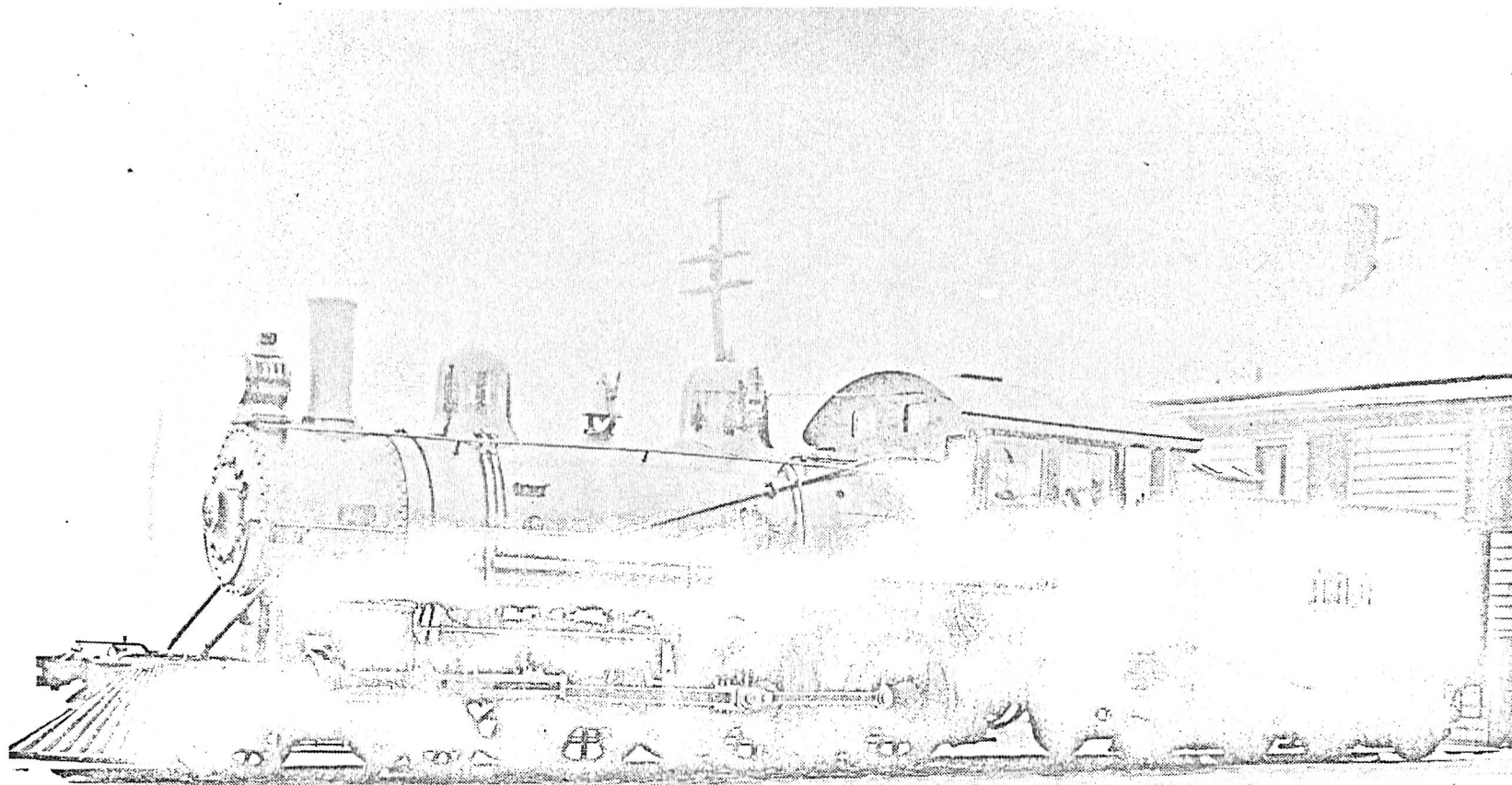
Bell Stand: Steel

Headlight: Acetylene

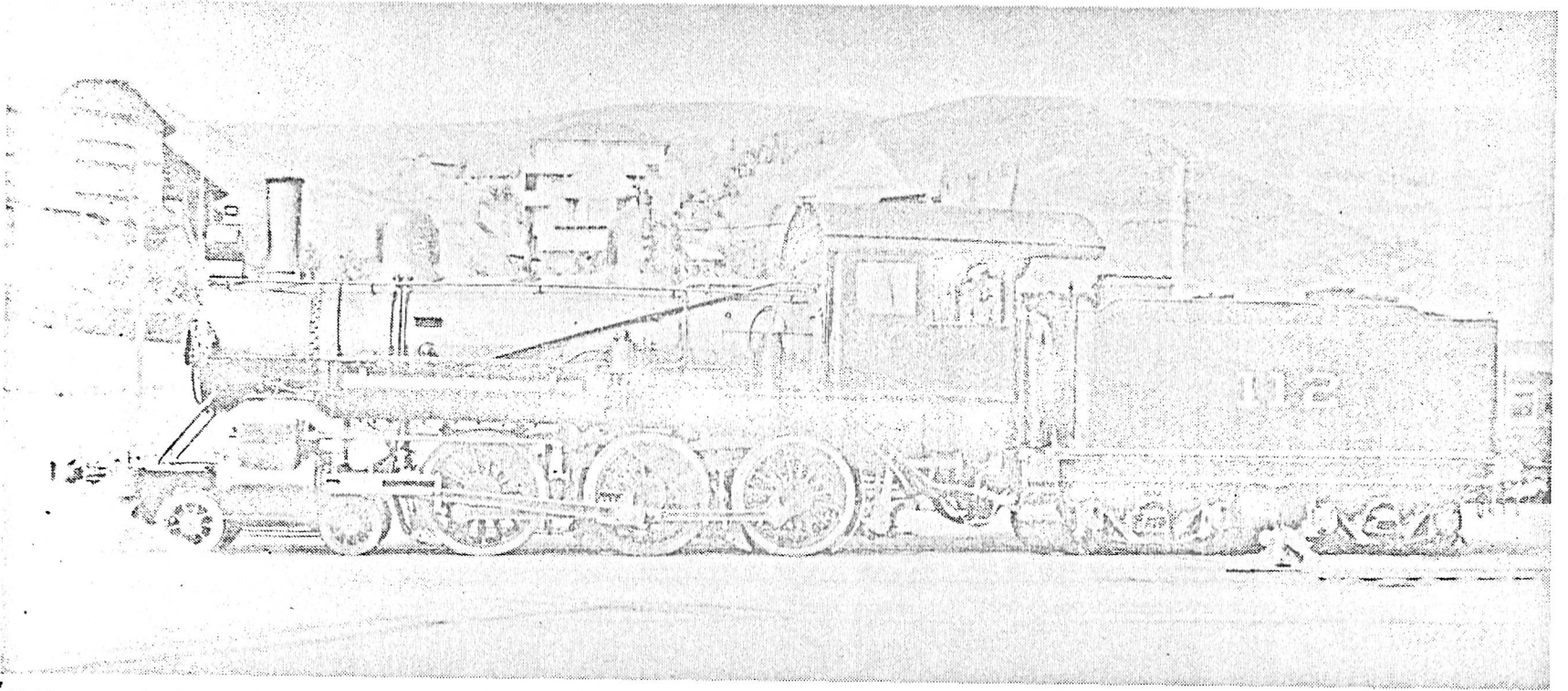
Number Plate: Brass

Safety Appliances to January 1908

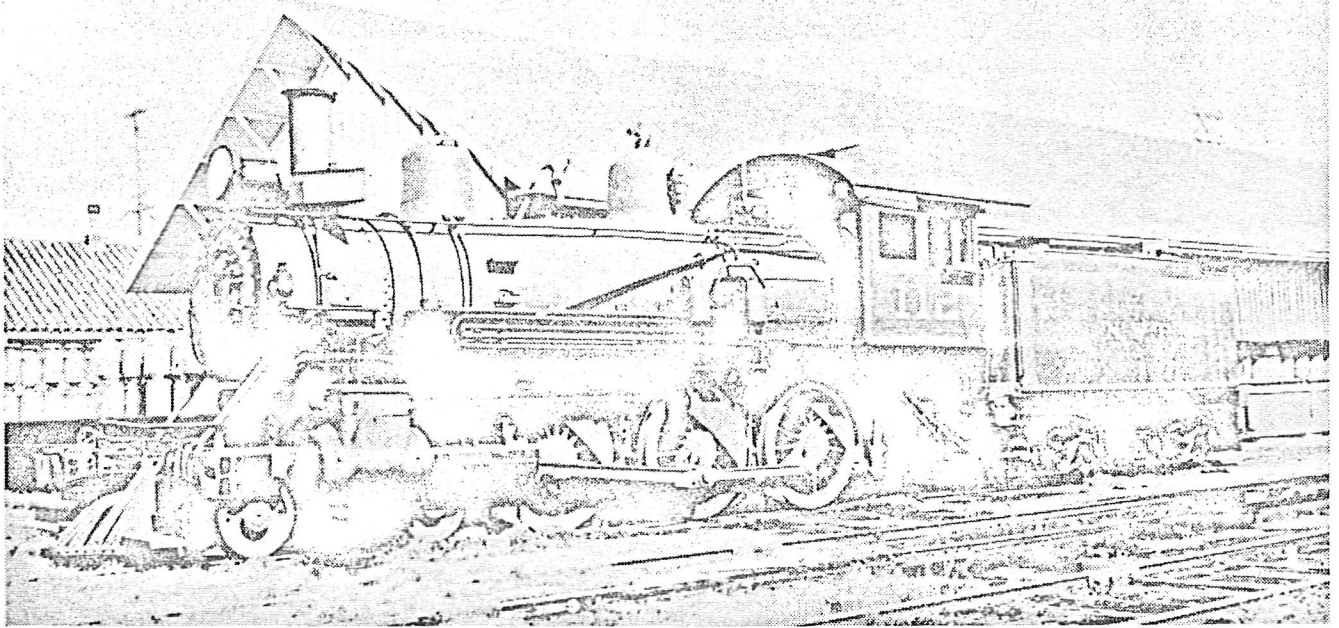
Painting: Best Black



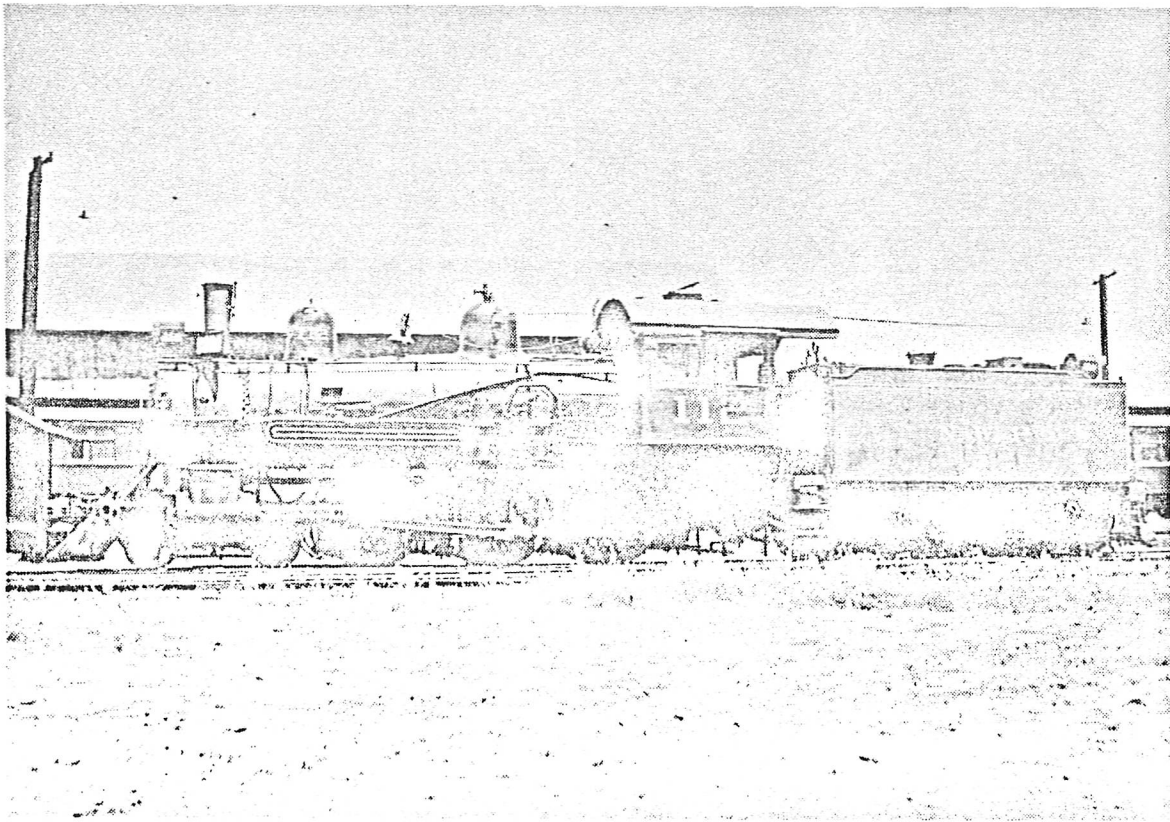
American Locomotive Company, Schenectady, February 1908
(American Locomotive Company)



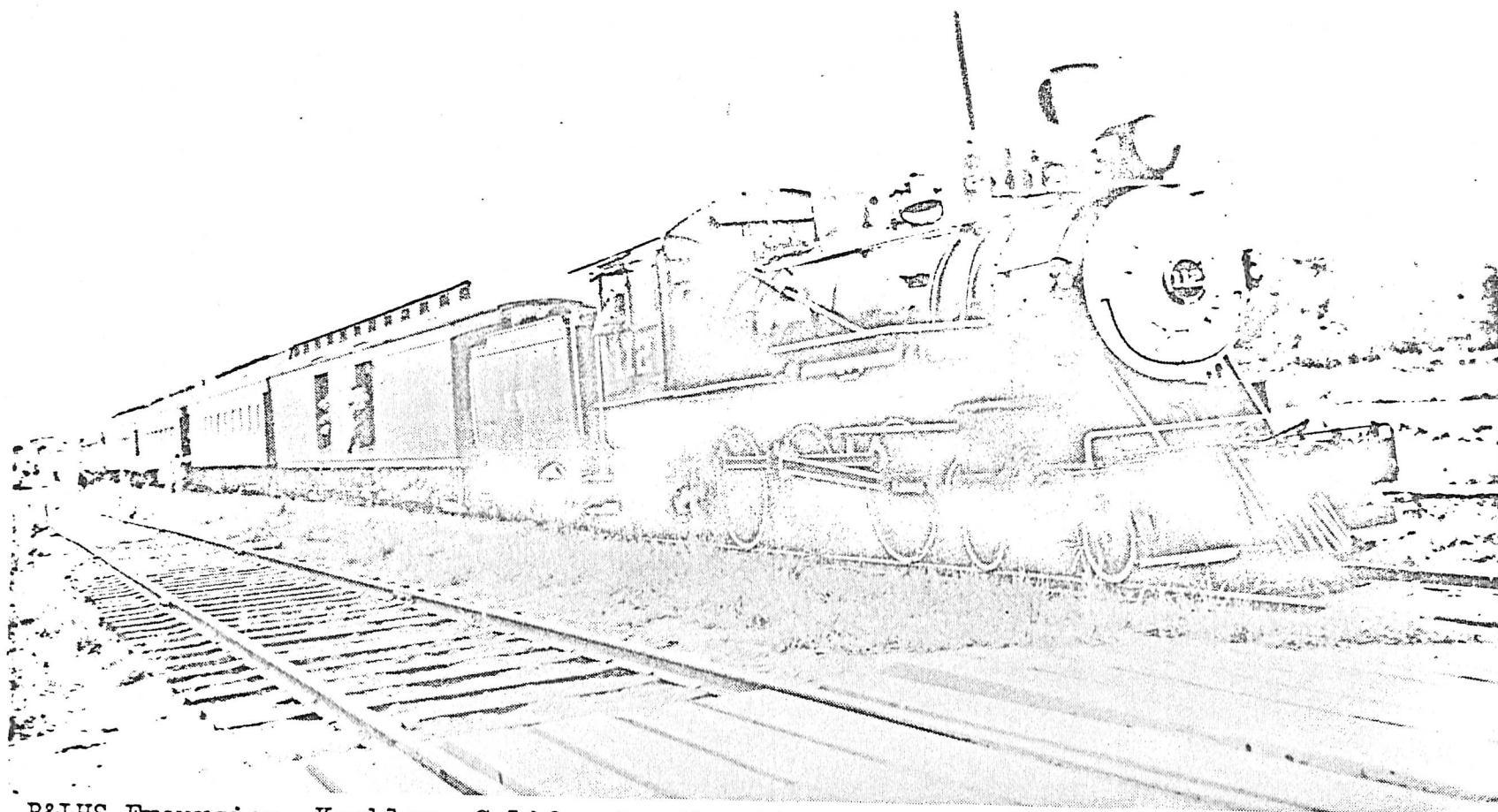
Tiburon, California, ca. 1908-1913



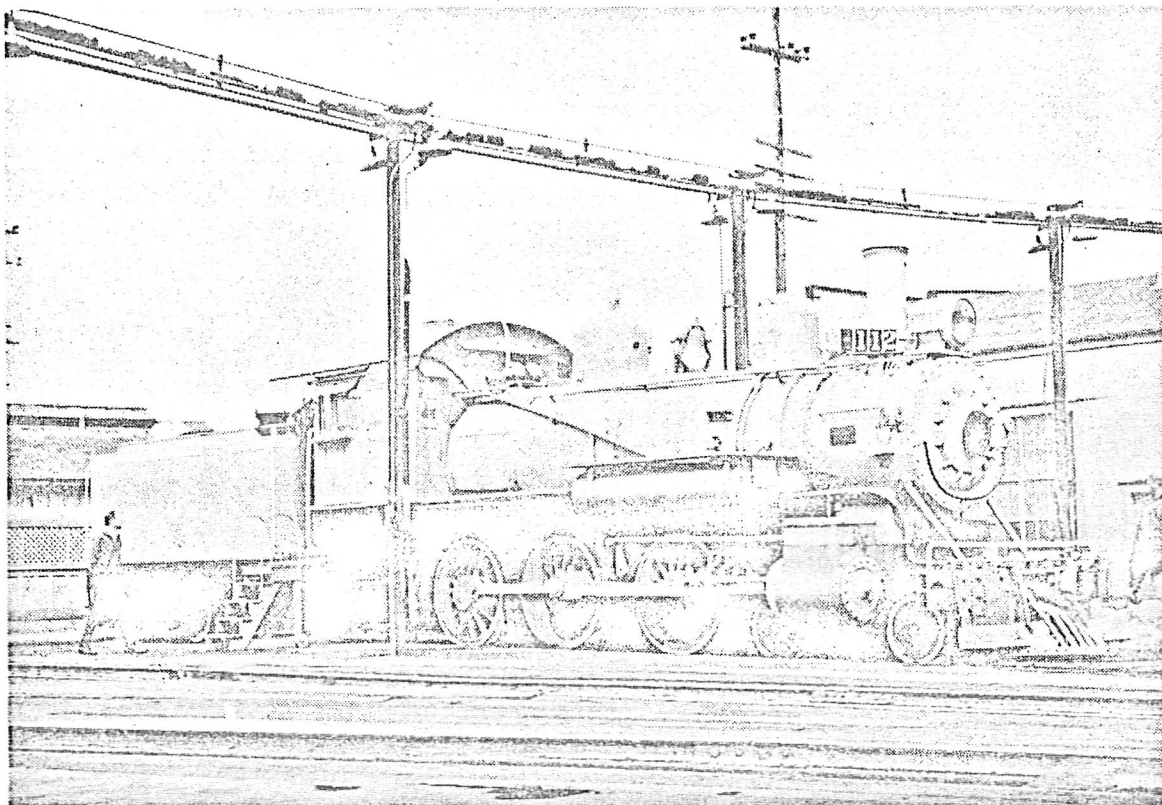
Petaluma, California, ca. 1930's



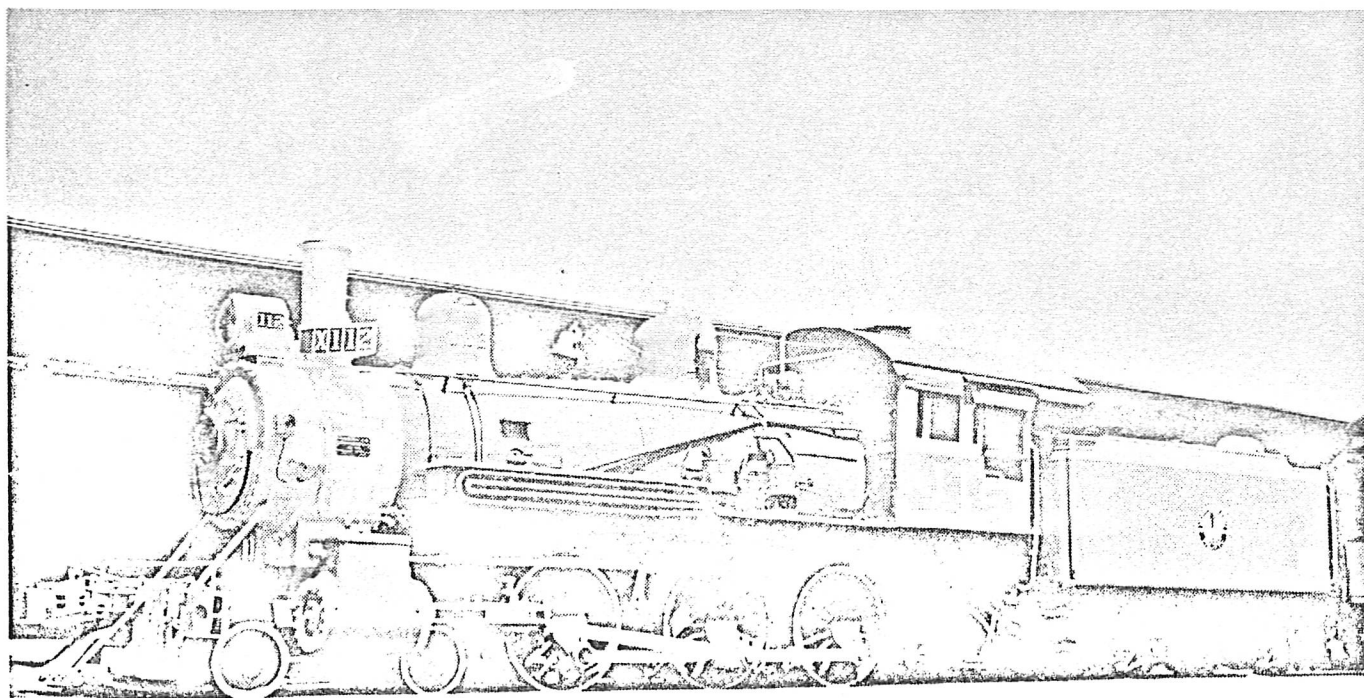
Sausalito, California, July 16, 1938
(Roy D. Graves Photo)



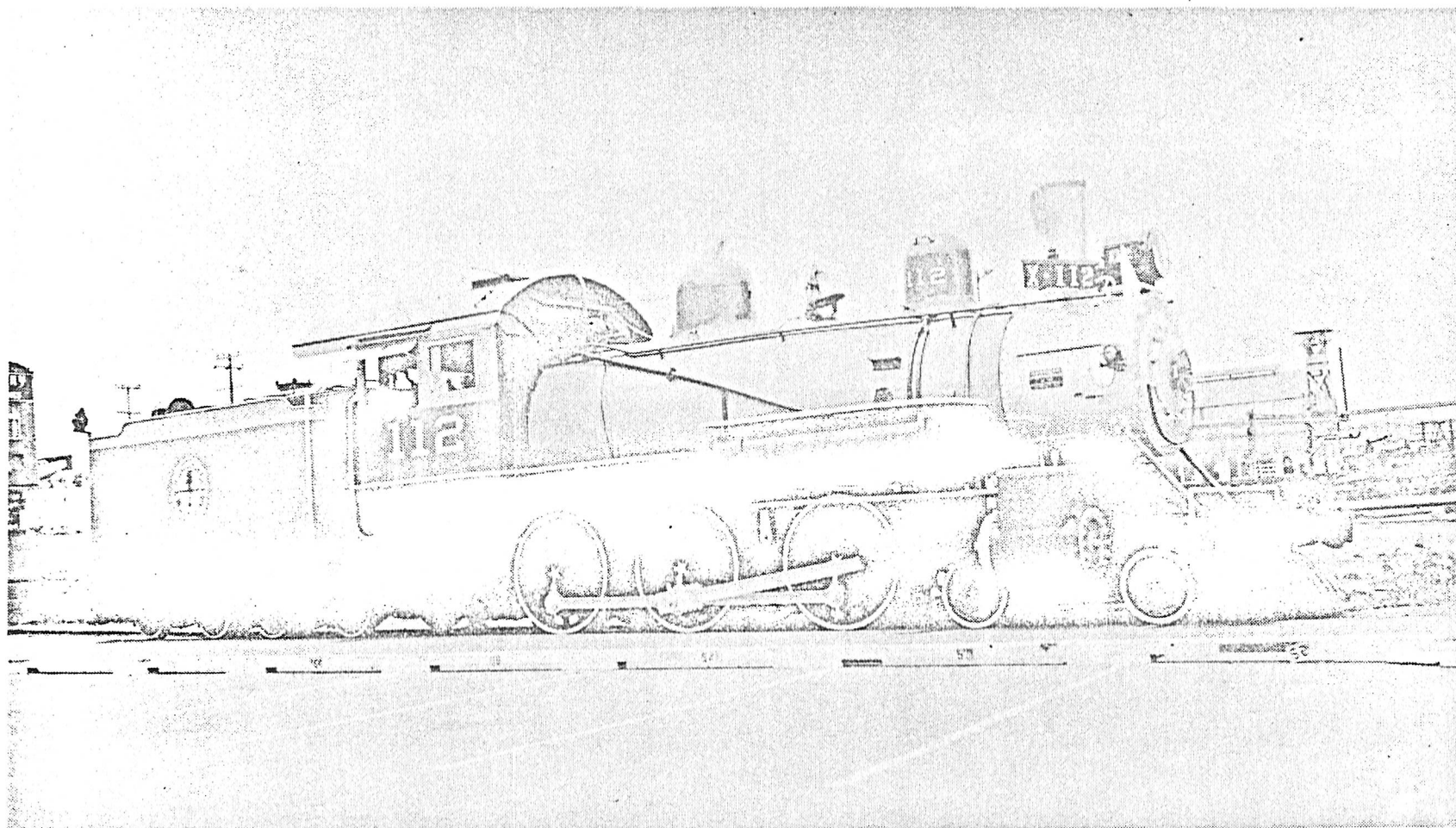
R&LHS Excursion, Korblex, California, May 24, 1952
(Fred A. Stindt Photo)



Tiburon, California, August 1955
(Roy D. Graves Photo)



S. P. Station, Sacramento, California, August 1955
(Fred A. Stindt Photo)



Bethlehem Ship Yard, San Francisco, California, May 18-19, 1965
(Fred A. Stindt Photo)

II. CURRENT CONDITION EVALUATION

Northwestern Pacific Locomotive No. 112 was examined inside the Safeway Stores Food Distribution Warehouse in east Sacramento where the engine has been in covered storage since early July 1969. The most recent repairs and complete repainting of the locomotive were performed early in 1965 at the San Francisco shipbuilding division of Bethlehem Steel Corporation. At that time minor timber renewal was performed, the scale was removed from inside the water tank and the exterior of the engine was spruced up for impending public display. A detailed listing of the 1965 work performed on the engine by Bethlehem is included in this report. No additional repainting or required maintenance has been performed on the locomotive since leaving the Bethlehem Yards on May 21, 1965, and, with the exception of interim dust and dirt accumulation, the engine's physical condition has not been altered since 1965.

The locomotive is primarily of cast and pressed steel construction and it is structurally stable and solid. The engine rests on its own wheels on covered standard gauge rails. When properly oiled and lubricated, the locomotive and tender can be safely pushed or towed in order to move the engine. Since 1952, the locomotive has been freely moved with main rods down as dead freight on its own wheels between Tiburon, San Francisco, Oakland and within Sacramento.

Mechanically, the engine last operated under steam on the Northwestern Pacific Railroad in May of 1952. It was doubtless due to the deteriorated condition of the firebox that the engine was retired from service effective June 1952. The locomotive has obviously had a good deal of routine and extraordinary repairs, part replacements and modifications performed throughout its career. With the major exception of the artificial boiler jacket applied in 1965 by Bethlehem, most of the alterations conform to generally accepted railroad shop procedures and practices in order to keep a 1908 steam locomotive in continuous active service for 44 years. The physical appearance and mechanical condition of the engine has been substantially altered since its 1908 construction as a result of federal safety applications and repairs performed at the Tiburon Northwestern Pacific Shops. Therefore, the present display impression of the engine most accurately relates to its 1940-1950 era prototype appearance on the N. W. P.

The major flagrant historical inaccuracy to the authentic display of this engine as an in service N. W. P. steam locomotive is the current paint scheme which was reapplied in 1965. The present two

tone green, beige, red and silver color scheme was never used by the N. W. P. on this locomotive at any time while in service nor was it utilized on any other locomotive of this class. The only accurate N. W. P. service color scheme is a coat of black paint with gold, yellow or white lettering or else black with either white or an aluminum-painted smoke box front, tires and trim.

There are several dozen 4-6-0's still in existence throughout the United States--many of which are older than the 112 or are still in active operation on tourist railroads. N. W. P. Locomotive No. 112's historical significance for the Sacramento California State Railroad Museum lies primarily with its unique role as the sole main line steam survivor of a major Northern California Twentieth Century industry and the engine's obvious display potential as a transitional engine between the small wood burning locomotives of the 1870's and the mammoth 124 foot long articulated cab-ahead locomotives of the 1940's and '50's.

Following is a listing of major components and a preliminary evaluation in relation to their appropriateness on the locomotive as built or subsequently modified by the Northwestern Pacific Railroad. The terms "excellent", "very good", "good", "fair" and "poor" are used throughout to qualitatively evaluate components for historically accurate static restored public display. The evaluation is based on detailed physical inspection with the assumption of non-operable static display; reoperation of the engine at any time would mandate thorough mechanical scrutiny, a careful reanalysis of component parts, and, doubtless, a major overhaul.

Unless otherwise noted, all modifications or alterations are presumed to have been performed by the Northwestern Pacific at their Tiburon, California, Shops between 1908 and 1952, inclusive.

COMPONENT ANALYSIS

Boiler: Original 1908 American Locomotive Company extended wagon top steel boiler; not reflued by Northwestern Pacific (SP) since at least 1940's.

Jacket: Unable to determine; Boiler jacket and bands are obscured by metal sheathing installed 1965 by Bethlehem using self tapping screws as cosmetic simulated renewed jacket; not railroad practice. External sand, steam and oil lines were heated and unscrewed to permit 1965 sheathing placement and then reinstalled.

Jacket bands: Original jacket bands were presumed removed and discarded 1965; no bands were applied to cosmetic sheathing. New jacket and band installation required for realistic display.

Generator: 32 volt DC Pyle National Company electric generator and lighting system, boiler-mounted March 1914 NWP addition replacing previous gas/oil lights. Very good condition.

Steam dome: 1, Pressed steel cover, very good condition; whistle and safety relief valves intact.

Bell: Stand, yoke, bell, intact; very good condition. Automatic bell ringer reconverted to manual operation.

Sand dome: 1, Pressed steel cover, good condition. Air sander was originally three line system to front and rear drivers; modified 1920's to two line front and middle drivers. Two top dome hand grabs are ca. 1915 safety additions. Marked "112" in brass numbers.

Smoke stack: Shot gun-funnel oil burning-type stack, good condition; hinged lid is ca. 1920 addition. Spark arrestor added July 1921.

Headlight: Pyle National March 1914 replacement for original acetylene Pintsch gas light, and left side running board gas tank and lines; headlight dimmers installed November 1919. Two headlight engine number boards bear "112". Headlight reinstalled 1965 at Bethlehem following storage. Original headlight mount and hand grabs intact.

Indicator boards: 2, 1965 additions furnished by R&LHS; marked Adlake-Small Train Indicating Lamp. Kerosene lamp vents are from Adams & Westlake Company old markers which were removed 1965 and fitted on new boards installed by Bethlehem. New boards installed on brackets where old ones removed in 1965. Initial kerosene lighted boards were ca. 1910-1913 addition to indicate train number; electrified ca. 1914 to 32 volt DC.

Boiler (Continued)

Hand rails: 2, Iron, good condition. Railing reworked and raised ca. 1920's at cab end. Two smoke box hand grab rails raised between 1938-1952 higher up smoke box; left rail bent around vertical piping. Posts reinstalled 1965.

Marker lights: 2, Pyle National electric, patented November 25, 1924; installed 1955. First markers were ca. 1908-1913 NWP kerosene additions; electrified ca. 1914 to 32 volt DC. Built 1908 without marker lights.

Running boards: 2, Pressed steel, post 1912 modified NWP replacements; fair condition.

Builder's plates: 2, Brass, fair condition; slightly defaced. Plates read "American Locomotive Company 44956 Schenectady Works February 1908".

Number plate: 1, Brass, excellent condition; plate reads "American Locomotive Company 112 1908".

Boiler checks: 2, Intact; reattached through 1965 jacket sheathing.

Boiler stay bolts appear solid; have been machine drilled to meet contemporary California boiler requirements.

Foot plates: 3, Cast plates required below sand dome and for left side head light access; only 2 below sand dome are intact following 1965 reinstallation on sheathing. Homemade replacement smoke box plates installed between 1938-1952 on both sides of head light.

Pilot boiler braces: 2, Intact.

Pilot flag holders: 2 Required; removed ca. 1915 and replaced by safety grab railing across pilot. Two replacement holders mounted atop front smoke box.

Two smoke box front door dog fasteners are homemade NWP replacements for original castings.

Boiler wear plates have been added for the main frame; lack of spring plates has left visible damage.

Fire Box: Periodic fire box attention evident. Fire brick lining is in poor condition, broken and melted by heat on particularly right side; fire box oil burner missing. Front and back plugs are still in place; should be removed to allow proper ventilation and prevent sweating.

Running Gear

Pony truck: 4, 26 inch diameter wheels, good condition; NWP replacements for original American spoked wheels. Swivel pony truck with heart links.

Cylinder covers and casings: Pressed steel; both front cylinder covers removed between 1938-1952, required for

Running Gear (Continued)

authentic pre-1938 display appearance.

Valves: Stephenson link valve motion; good condition. Main rods temporarily stored on top of tender with one false wood rod with grease cup manufactured for 1955 static display. Main rods cleaned and greased 1965. Wood cage built on second driver axle to protect axle in absence of rod. Wooden spacer blocks have been wired in place since leaving NWP to protect cross-head guides.

Drivers: 6, 57 inches diameter, very good condition. Steel tires only slightly worn, good condition. Front driver flange oil lubricators added by NWP in addition to rear two; reservoir intact on engineer's side.

Suspension system: Generally sound. Profuse frame patching evident. Four eccentric straps and blades are stored on top of tender; should be reinstalled for display.

Pilot apron: Good condition.

Pilot beam: 1, Cast steel replacement beam installed November 1919. Original beam had rectangular cast poling pockets instead of present indented round ones.

Pilot: Modified steel boiler tube pilot and wooden foot board installed November 1919 by NWP, intact, some straightening required; three steel rod staves missing each side were removed between 1938-1952. Original pilot was full-staved wood construction. Air signal line has been removed across pilot only.

Pilot coupler pocket: Original style; very good condition.

Frame: Visibly heavily patched by NWP due to major wreck or other derailment; patched between cylinder and first driver above rear pony truck wheel on left side and patched and braced on right side between second and third drivers.

Cab: Riveted steel construction cab and roof, fair condition; single roof vent. Cab has been profusely patched through the years; added body putty continues to crack. Wooden sashes and doors last renewed 1965 at Bethlehem. Cab lettered "112 T-46 T-57 19/26 110"; originally lettered "N. W. P. T-57 19/26 110". Visors, cab side and roof hand rails are ca. 1912-1938 NWP additions.

Windows: 15, Glasses intact; fireman's upper front view window is NWP addition.

Hand rails: 2, Intact, good condition; slightly bent out of line toward center.

Floor boards: Generally solid except for 1965 light weight plywood addition immediately in front of backhead.

Cab (Continued)

Seats: 2, Lightweight replacement plywood seat boxes with seats, backs and arm rests recovered 1965.

Lubricator: Nathan No. 9 3-spot; good condition.

Steam gauge: Missing.

Water gauge: Nathan, glass cracked.

Steam heat: Safety Car Heating & Lighting Company system installed October 1914; cab gauge missing.

Injectors: 2, Monitor-Nathan type, very good condition; apparently original. Auxiliary line has been added to injector delivery pipe for fire fighting purposes directly from tender water supply.

Signal line: Original actuator and pulley intact but line in cab and across pilot removed.

Lights: Originally kerosene lights; replaced 1914 by six lamp 32 volt DC system. Present lights are wired for 120 volt AC cab interior display illumination; water gauge lamp hood and lubricator light missing.

Backhead fittings: Generally appropriate to engine and railroad practices except Wilmington Industrial Service gauges marked August 4, 1958, installed 1965. Some internal parts of gauges are broken, several are missing; some fittings are incomplete. Left side drifting valve should be brought to full upright position instead of present free position.

Cab fuse, torpedo, flag and grease wooden storage boxes intact, fair to good condition; well worn through regular use.

Storm curtain intact.

Tender

Underframe: Steel with wood front and rear end sills; very good condition. Rear sill renewed 1965 to oversized timber specifications and coupler refastened; original sill replaced by NWP with oversized timber.

Water tank: Good condition; loose inside scale removed 1965.

Oil tank: Good condition.

Tool boxes: 3 Required on top of tender; only 1 wood box intact.

Foot boards: Wood, intact, ca. 1912-1938 additions; remove for authentic 1908 as-built appearance.

Safety chains: 8, Intact.

Rear tender ladder: Intact.

Rear tender head light: Pyle National ca. 1914-17 vintage. First lamp was kerosene type installed ca. 1909-1913; replaced July 1917 with present type 32 volt DC light; temporarily fitted with visor ca. 1938. New frosted glass number panes manufactured and installed 1965 by Bethlehem.

Tender (Continued)

Hand rails: Forward 2 railings intact, good condition; rear 2 corner railings are ca. 1908-1911 addition. Rear horizontal grab rail was added ca. 1912-1918 at time of foot board addition.

Foot plates: 2, Rear tender single step stirrup strap intact; pressed steel step fashioned ca. 1912-1938; require straightening. 2 forward two-step strap iron and wood step mounts are ca. 1912-1938 lightweight replacements for original castings.

Rear coupler pocket and uncoupling lever refastened 1965 by Bethlehem.

Trucks: 2, Four wheel steel frame, very good condition; frame castings identified as American Schenectady January 1908 castings, patent October 6, 1886. Wheels are 1940 marked 33 inch diameter cast iron SP Sacramento replacements. Most journal covers are contemporary National pressed steel replacements instead of original type Symington castings; standardization required. Springs are double elliptic; very good condition.

Rerailing frog hooks: 2, Intact; frogs missing. Hooks are ca. 1938-1952 addition.

Sand box: Riveted box with reworked lid intact; fair condition. Sand still in bottom of box with modified antique hose reel. Sand in box from last 1952 fire box flue cleaning.

Stretchers, 4 eccentric straps and blades, 2 main driving rods and one cosmetic display wooden rod with oil cup secured on top of tender. Rods last cleaned and greased 1965.

Flag brackets: 2, Rear flag brackets are ca. 1908-1912 additions.

Tender step to atop oil tank is welded in place.

Tender is marked "69" on tank, "N. W. P." and "Redwood Empire" seal on sides and "112" on rear. Tender sides originally lettered "N. W. P. 112".

Gangway-back apron sheets are worn pressed steel replacements.

Tender purchased new with engine; October 1914 added Safety Car Heating & Lighting Company steam heat lines intact.

Sides lettered "N. W. P." with full color NWP Redwood Empire Route emblem; rear tender numbered "112". Emblem first applied 1955 after retirement of engine.

Air Brake Equipment: Westinghouse train and tender brake and American driver air brake system intact, modified and updated by NWP. Additional left side 9-1/2 inch compressor and required 90 ft. lines added ca. 1912-1915. Both pumps have plumbing altered from original installation: original without either line, lines have been modified on added pump. Cab air gauges appear original, good condition. All brake shoes are well worn; center driver brake shoes evince severe wear and resulting dragging on driver tire. Lines, 175 lb. reservoirs,

Air Brake Equipment (Continued)

gauges, hoses appear intact for display purposes.

Draft Gear: Steel draft rigging intact; couplers are early NWP ARA oversized replacements for original slotted face Tower Janney style couplers. Couplers and uncoupling rods intact, very good condition.

Color Scheme: Applied 1965 using color scheme briefly applied early 1920's to four NWP passenger engines; No. 112 never had this paint scheme while in service on NWP. Colors are two-tone green; beige jacket; silver smoke box, cylinder head covers, smoke stack, rods, running board edges and wheel trim; white safety grab irons; black wheels, head light piping and underframe; gold lettering and numbering; and full color NWP Redwood Empire Route emblem on tender sides. Original colors as built 1908 were black with gold or white numbers, letters, tire trim, etc. Two-tone green color scheme first applied mid 1955 after engine was retired at suggestion of Fred Stindt for exhibition at SP (Sacramento Valley R. R.) Centennial display August 1955 at Sacramento.

Itemized list of repair performed January-May 1965 by Bethlehem Steel Corporation, Shipbuilding Division, San Francisco, California, on Northwestern Pacific Railroad Locomotive No. 112:

Furnished labor and material to perform the following:

Renewed timbers as necessary and refastened coupler on tender.

Renewed metal sheathing over boiler lagging as necessary.

Removed loose paint and repainted entire engine and tender including lettering and insignias as directed by Mr. Fred Stindt.

Removed old marker lights from top of boiler front.

Cut off kerosine caps on top of same and installed on new owner furnished marker lights. New marker lights were installed on same brackets where old ones were removed.

Installed headlight on boiler top.

Made new frosted glass for marker lights on tender back up headlight and installed same.

Cleaned out scale from interior of tender water tank.

Recovered fireman and engineer's seat, back and arm rest.

Repaired wooden sash and doors in engine cab.

Installed gauges on boiler back head as directed.

Removed scale, cleaned and greased side rods stored on top of tender.

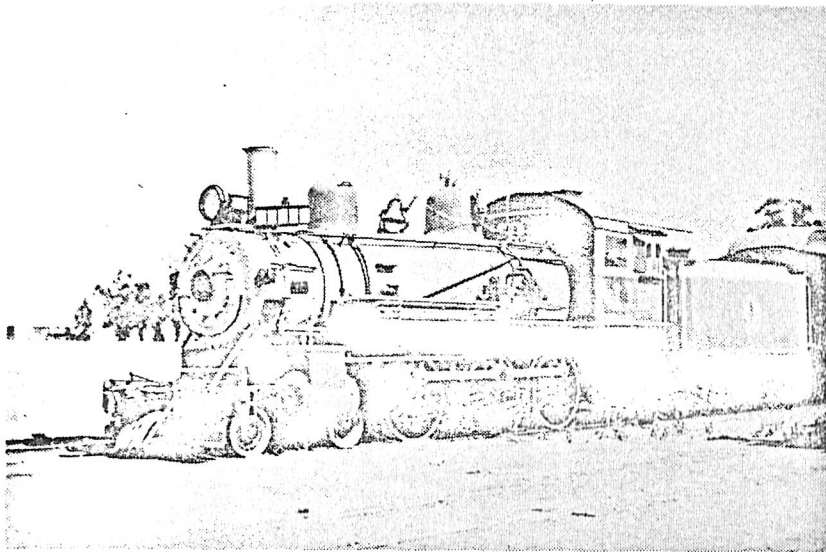
Removed external fuel and steam lines attached to boiler to allow installation of new sheathing. This removal was accomplished by heating and unscrewing coupling as required.

Removed retainer clips and straps holding existing sheathing.

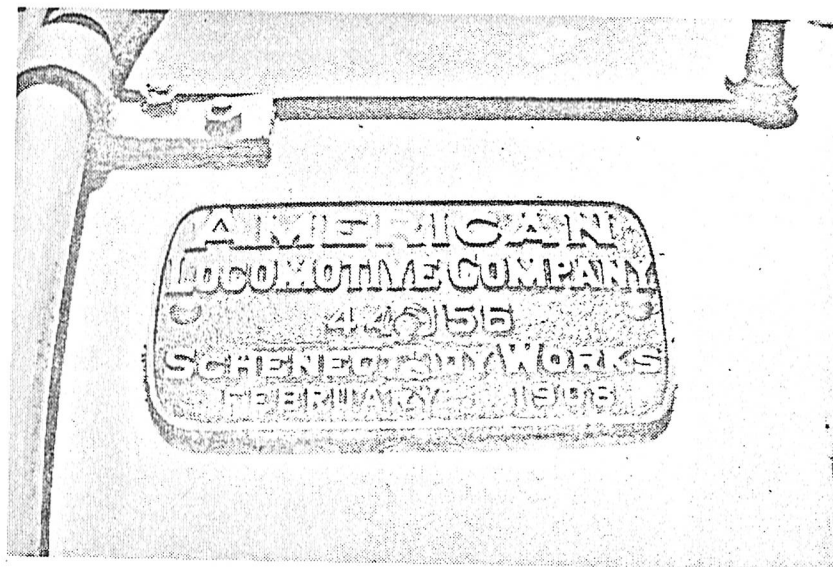
Installed new sheathing directly over existing sheathing by the use of self tapping screws.

Applied Devcon to wasted areas around cab as directed by Mr. McKay.

Reinstalled external fuel and steam lines which were unscrewed.



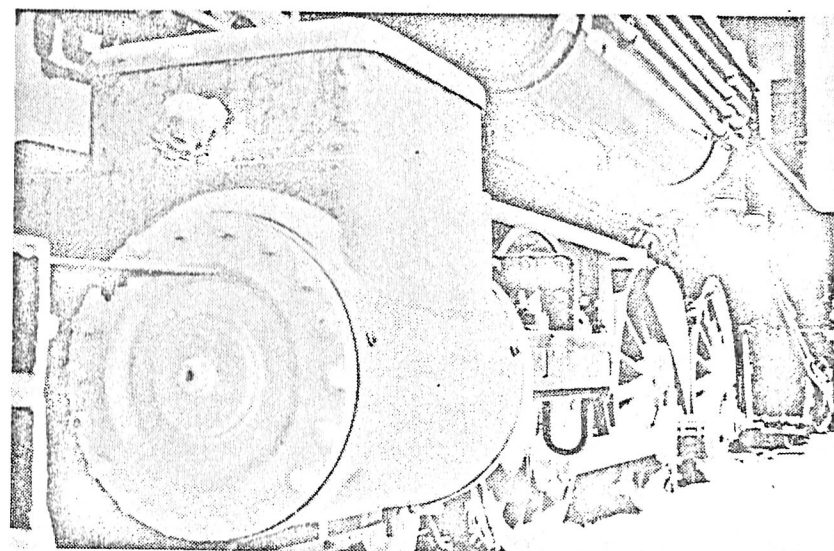
Sacramento, June 15, 1976



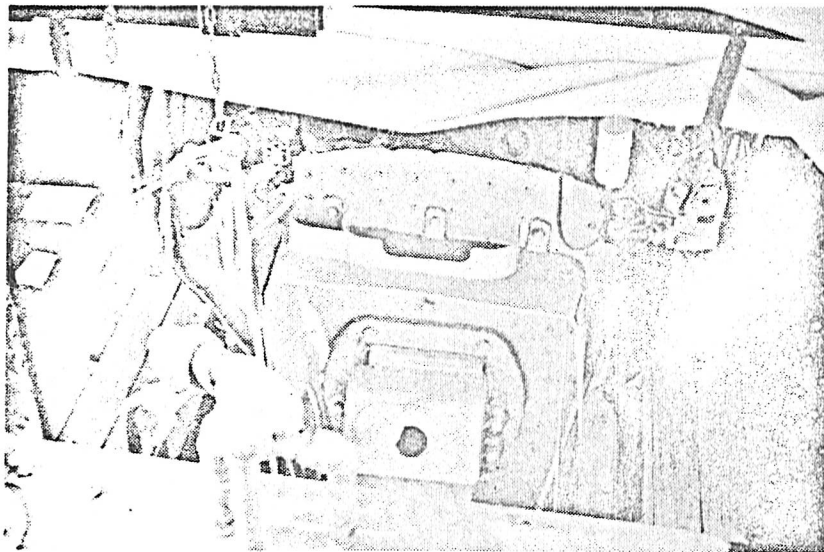
Left side builder's plate



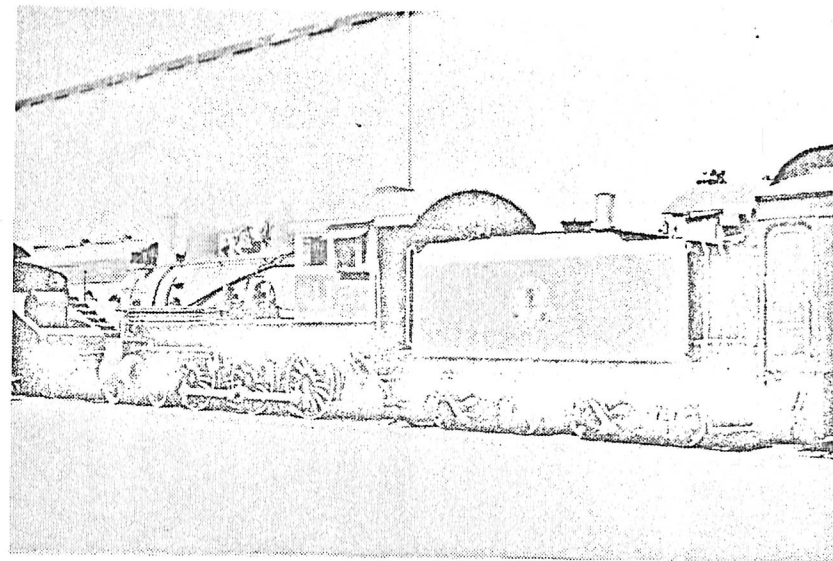
Front brass number plate



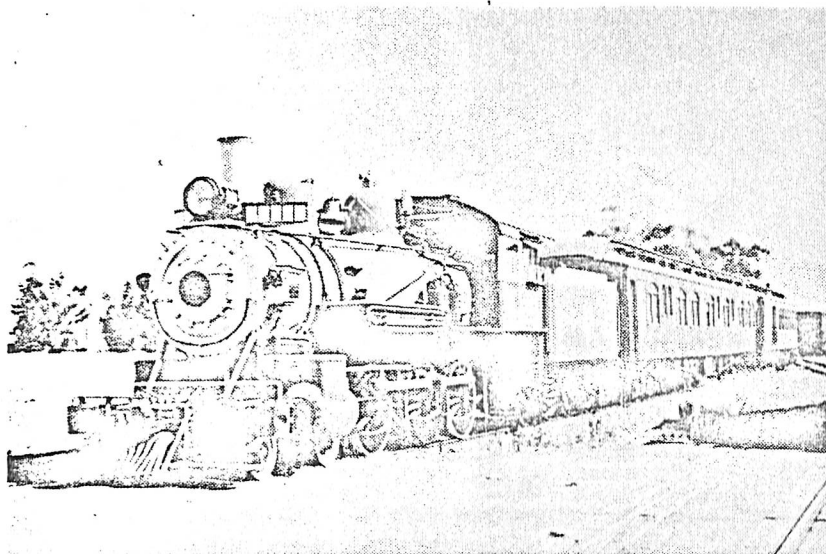
Left front cylinder



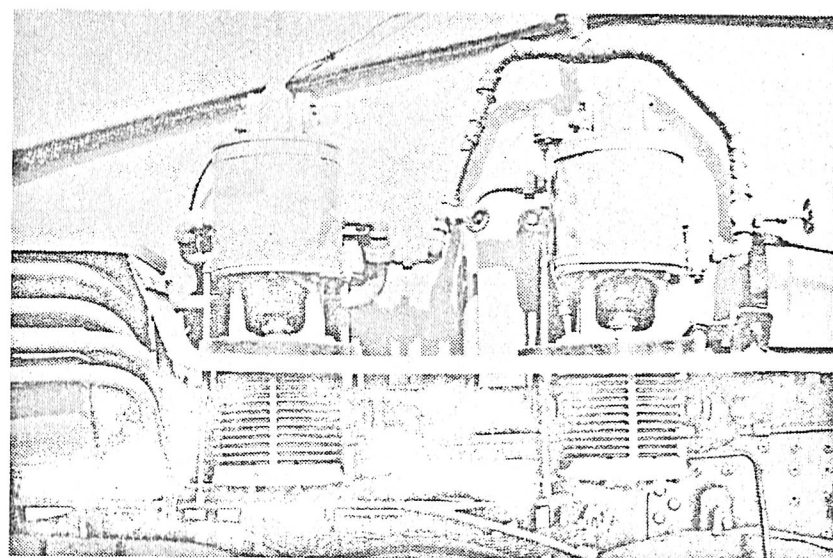
Fire box door



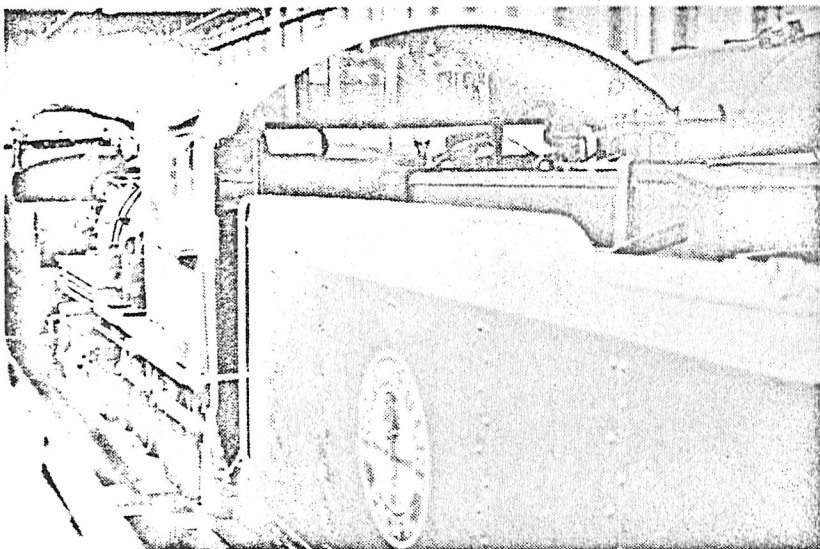
Left side



Left front view



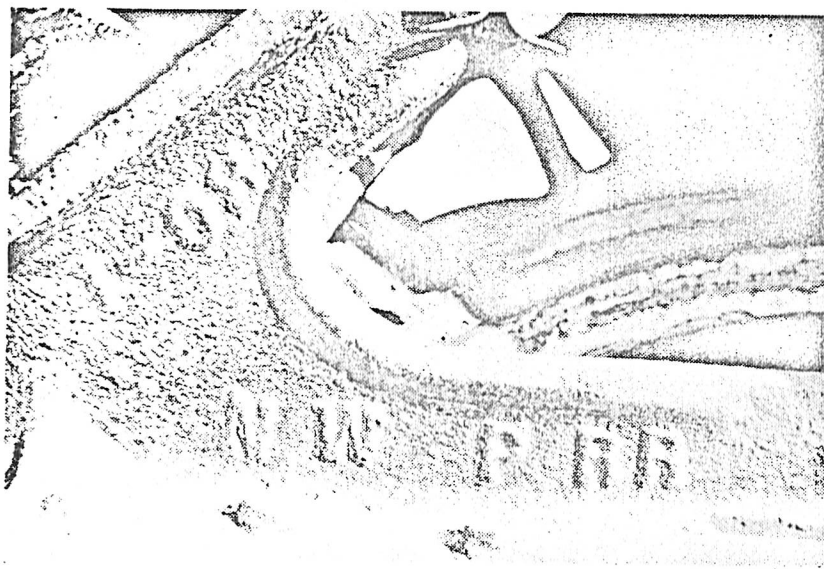
Westinghouse air pumps



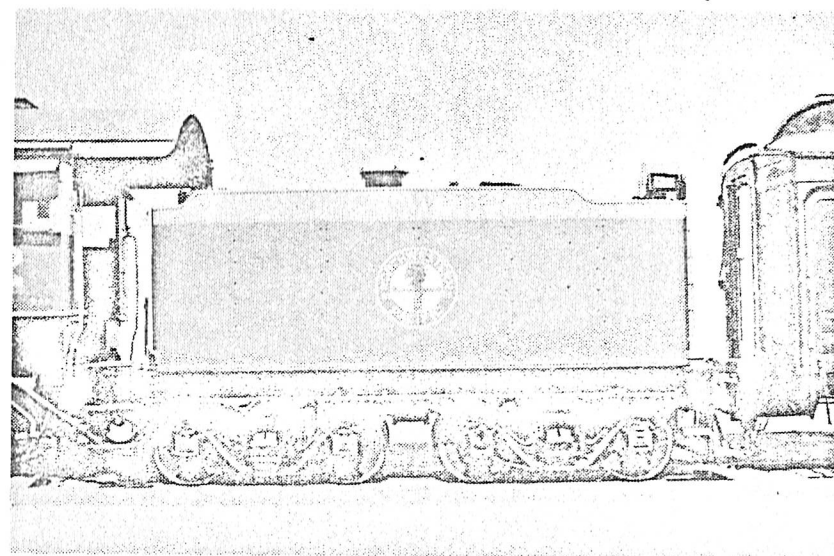
Tender side



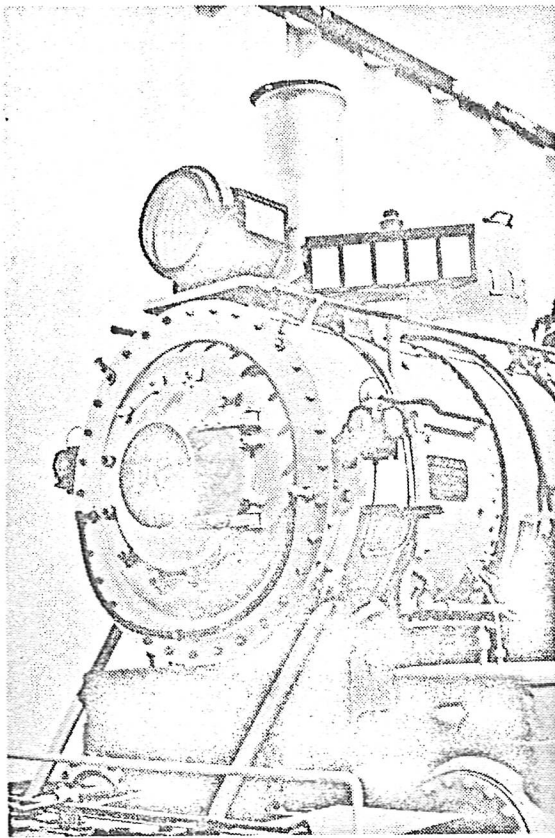
Redwood Empire emblem



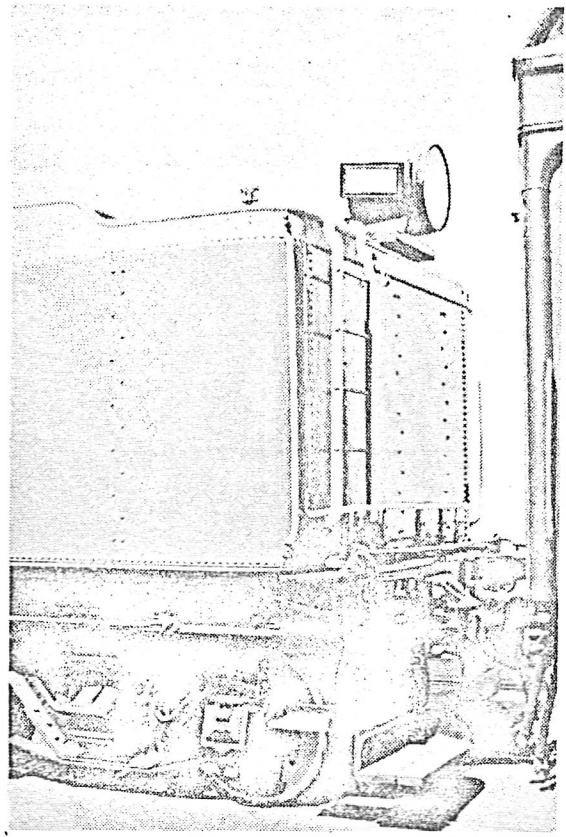
Marked tender truck frames



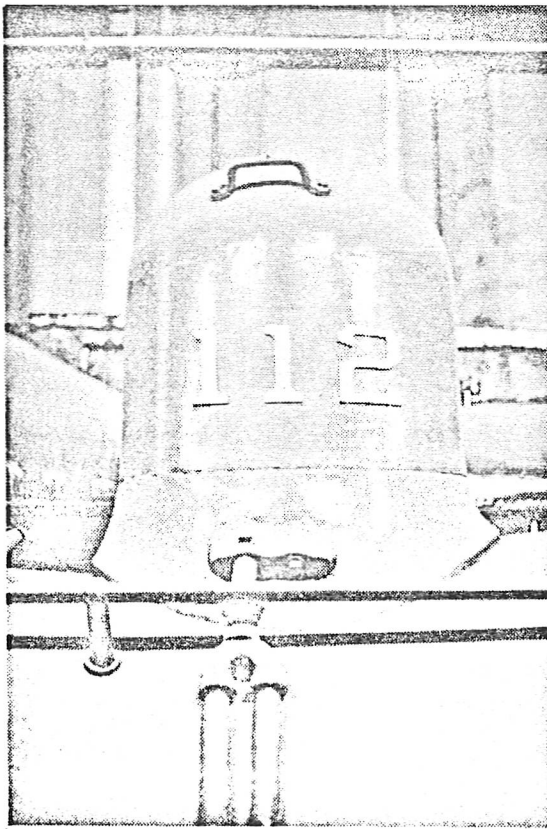
4,500 gallon tank



Smoke box hardware



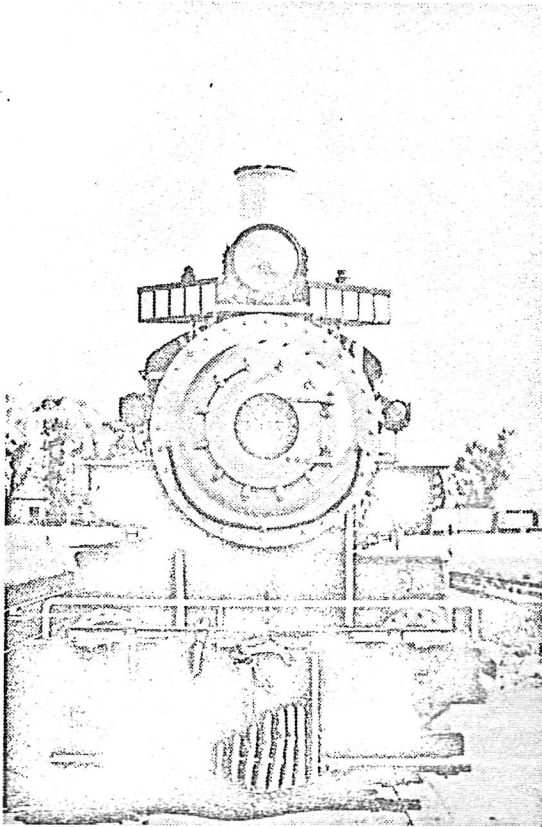
Rear tender



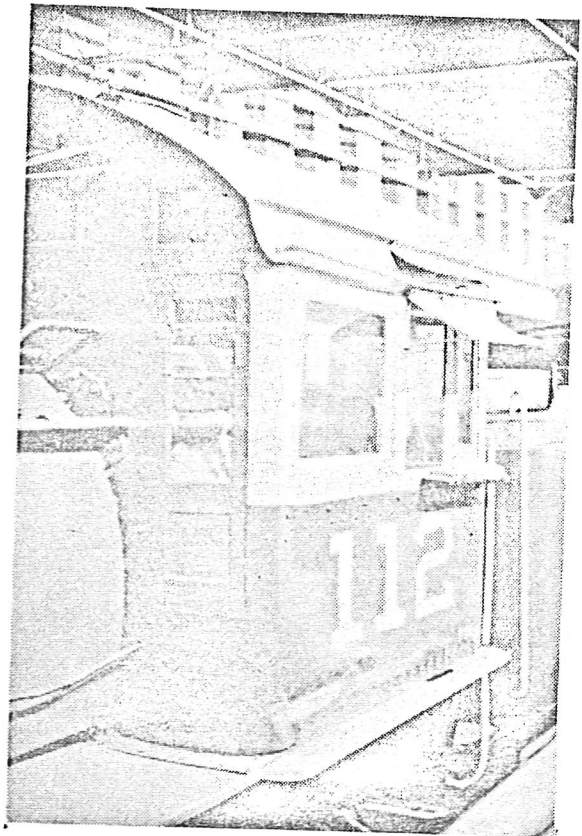
Sand dome



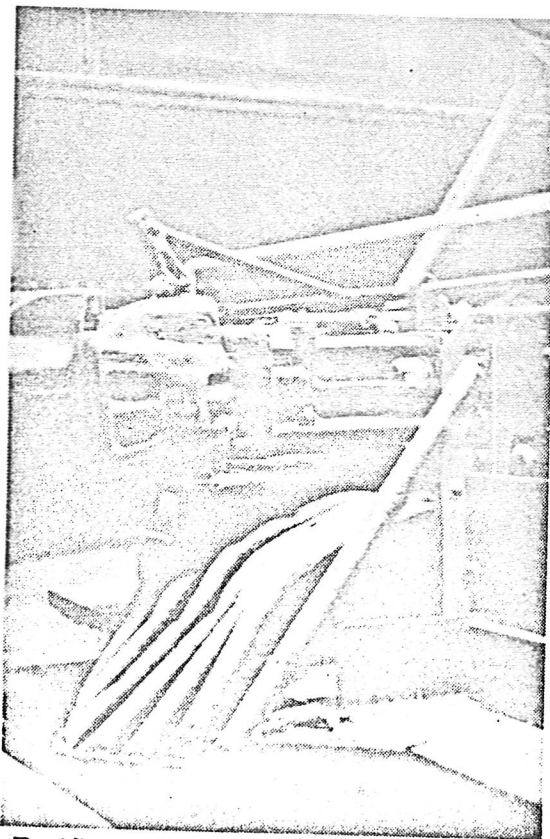
Cab engineer's controls



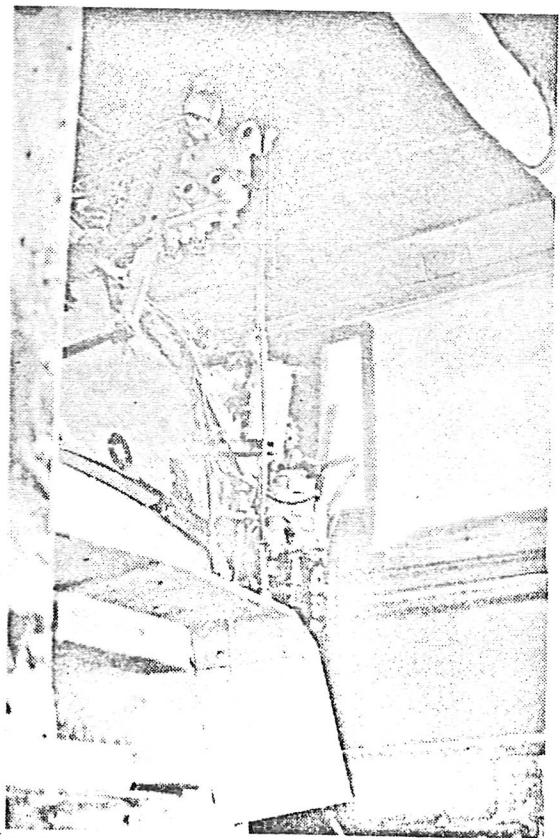
Locomotive front



Fireman's side cab



Boiler tube pilot



Cab interior

III. RESTORATION RECOMMENDATIONS

The following recommendations are based on static quality restoration of Northwestern Pacific Locomotive No. 112 for purposes of non-operative public display. The most immediate accurate display of the locomotive as an in-service engine suggests restoration of the unit to its prototype 1940's-1952 appearance on the N. W. P. Ultimate full restoration of the engine to its original 1908 appearance as built new ought to be deferred as a long range restoration goal.

Although constructed in 1908, the locomotive's present modified appearance is typical of engines in the last few decades of main line steam railroading. For this reason No. 112 could most easily be restored to its 1940's-1952 in-service period appearance to meet immediate accurate public display requirements. A contemporary restoration of this type can be accomplished with a minimum expenditure of time and money and yet still result in a documented and accurate N. W. P. appearance. A faithful ca. 1950 era restoration would demonstrate the development and service techniques of a medium sized locomotive as compared with smaller engines such as the Virginia & Truckee "Genoa", "Empire" and "J. W. Bowker".

A ca. 1950 restoration could likely be performed within five weeks for a total material and labor cost of \$5,000. The restoration work would entail complete cleaning, tightening and oiling; installation of new boiler jacket with bands; cleaning fire box; properly cleaning and venting boiler; reinstallation of main driving rods; general straightening of piping, lines and wiring; replacement of missing plumbing, handles, valves, and gauges; and complete repainting to a Northwestern Pacific black paint scheme with white lettering and numbering and appropriate white trim on the smoke box front, tires and running board edges, etc.

The full eventual restoration of this engine to accurately represent its 1908 as-built appearance on the Northwestern Pacific would likely occupy a low priority in view of vintage equipment already in the State of California Collection which desperately requires major attention in order to prepare it for public display and to assure its continued structural integrity. Full 1908 restoration would likely cost approximately \$16,500 at this writing.

See also Drew & Oden

10/89

NORTHWESTERN PACIFIC RAILROAD

Steam Locomotive No. 112

by
Fred Winik

California State Railroad Museum
Department of Parks and Recreation

March 22, 1979

PREFACE

The following report should be regarded as an addendum to the Equipment Restoration Feasibility Investigation conducted by Stephen E. Drew and William A. Oden. That study, completed in 1976, contains detailed histories and component analyses of several pieces of rolling stock including the Northwestern Pacific Railroad No. 112. Rather than duplicate that material, the following update describes the avenues explored and information uncovered since the Drew-Oden report appeared.

NORTHWESTERN PACIFIC RAILROAD

STEAM LOCOMOTIVE NO. 112

In the California State Archives, Sacramento, is a broken set of annual reports of the Northwestern Pacific Railroad. The volume for 1907, the year of incorporation, contains a summary of consolidated receipts and disbursements which shows a surplus on all divisions of the line. Noting the swift recovery from the disastrous earthquake of 1906, the report asserts confidently:

...it may be claimed that the business of this part of the property is rapidly increasing and the development of the territory served justifies the hope that this increase will continue....

The floating equipment and rolling stock have been kept up to standard by repairs, but the latter has become entirely inadequate to the demands of the rapidly increasing traffic.

To meet this condition, the following purchases of rolling stock have been authorized and arrangements are being made for its delivery during the next six months....¹

The list that followed included "4 Freight Engines" for the Western Division. The next year's report listed them individually: No. 112 and her three sisters 111, 113, and 114, substantial additions to a growing enterprise.²

The company's hope that business would continue to expand was fully justified. Indeed, one of the most striking facts to emerge from the NWP's annual reports is the tremendous wealth of the area served by the railroad. The yearly inventories of freight traffic, the maps of the different divisions, and a host of regional brochures all attest to the variety and magnitude of the resources along the route: livestock, farm products, poultry

("Petaluma - Home of 8,000,000 Chickens"), vineyards, tourism--and, of course, the magnificent timber that gave the Redwood Empire its name.³

In exhibiting the 112, some thought should be given to describing the burst of development that the NWP helped generate and the many facets of people's lives that it touched upon. Such an explanation would link the hardware, the engine itself, with other aspects of the exhibitry such as freight, agriculture, and travel, and in doing so would help to integrate the museum's collection and sharpen its interpretive force.

Recent research into the history of the 112 has involved interviewing people who had contact with the engine at some point during its service life. These interviews have been useful chiefly in providing eyewitness descriptions of the 112 from 1922 to 1952, a period covering 30 of its 44 years of operation. The consensus among those contacted is that the 112 was always painted black with white trim on the tires, running boards, and other appropriate places, rather than its present green configuration. In the 1920's, the numbers and lettering were applied in gold leaf, just as on the NWP passenger coaches. Sometime in the 1930's the gold was replaced by yellow paint, and the engine's number was relocated from the tender to the cab. Certainly the expense, particularly during the Depression, could have inspired the transition from gold leaf to paint. Moreover, the change took place after Southern Pacific had acquired full ownership of the NWP in 1929. Research on S.P. 6009 has revealed that the same changeover from gold to paint was occurring at about the same time on S.P. lines in Texas, and the parallel development suggests that this may have been a generalized policy of the Southern Pacific.

Descriptions of the 112 in the late 1940's and early 1950's contain slightly more detail. The engine was apparently black with the usual trim, variously described as "off-white", "pearl-colored", and "S.P.'s silver-aluminum". The smokebox was graphited, with a silver cover. The cab interior was green. All lettering was done with aluminum paint, with the large "112" under the cab window and five-inch numbers on the rear of the tender. In its last year of service, it is reported to have had a square, original-type tender with "Southern Pacific" painted on the side. At that time, it was used in yard service at Eureka, and occasionally made a run to the Hammond Lumber Company in Samoa.

Physical evidence on the engine itself generally supports these personal recollections. The two most recent paint jobs, one applied by S.P. in 1955 and the other by Bethlehem in 1965, dressed the 112 in the green livery it presently wears. Underneath the green are innumerable layers of black, many of them soft and pliable from repeated over-painting. The cab exterior has approximately twenty layers of black. The tires and running boards are "white". The cab interior shows numerous layers of green. Some areas, such as the smokebox and drivers, have only one or two coats of paint on them, and were apparently stripped by S.P. or Bethlehem prior to repainting. The 112's rods have several layers of "white" paint on them, evidently applied after the engine was retired from service to protect against rusting. Several spokes on the right front driver have been brazed, possibly to repair a crack, but no documentary evidence of a wreck or major accident involving the 112 has yet been discovered. Given the accessibility to public view of the right side

of the engine as it is currently displayed in the passenger station, extensive paint scraping, particularly in the lettered areas, should be deferred until the 112 is moved to the CSRM restoration shop.

The detailed component analysis contained in the Drew-Oden report indicates that, in its present configuration, the 112 comes closest to its 1940's-1952 operational appearance, and that a restoration to that period would be the most easily accomplished in terms of time and cost. From an interpretive standpoint as well, a 1940's-1952 era restoration is an appropriate choice. As the paint scheme remained comparatively unchanged on the engine from the date of its manufacture, little would be gained in terms of visual impact by returning it to its 1908 configuration; and despite the modifications applied over the years, the 112's overall structure marks it in the public eye as a medium-sized engine standing between the woodburners of the 1870's and the giant S.P. cab-forward. Fundamentally, the NWP 112--the sole steam survivor of a California main line railroad--is important neither for its venerable age nor exceptional design, but as a representative workhorse engine which performed versatile service for nearly half a century. Thus, it is most fitting that the 112 be restored not to its pristine 1908 appearance, but to a later period in which its true significance as a working engine was in fact realized. Moreover, such an interpretation would dramatize the durability and continued operation of such railroad equipment through several decades of American life, as illustrated elsewhere in the CSRM collection by the "Genoa" (built in 1873, restored to 1902) and the NMSL No. 1 (built in 1879, restored to 1920's).

K-4886C

NOTES

1. Annual Report of the Year Ending June 30, 1907.
Northwestern Pacific Railroad. p. 7-8.
(California State Archives.)
2. Annual Report for the Year Ending June 30, 1908.
Northwestern Pacific Railroad. p. 19.
(California State Archives.)
3. Annual Reports of the Northwestern Pacific Railroad,
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